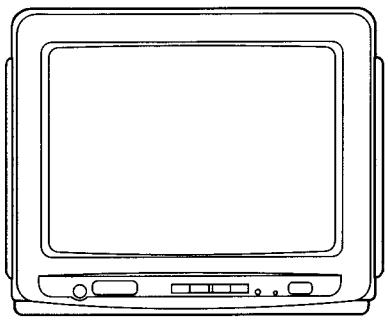
aiwa

aiwa SERVICE

# TV-C202

SERVICE MANUAL



COLOR TELEVISION

• TYPE: KER

## SPECIFICATIONS

**Category**
Color television
**Broadcasting color system**
PAL (B/G, D/K), SECAM (B/G, D/K, K1)
**Television color system (Video input)**
PAL, SECAM, $NTSC_{3.58}$, $NTSC_{4.43}$, PAL60
**Receivable channel**

| BAND | CHANNEL |
|---|---|
| VHF | E2- E12 (WEST EUROPE) |
| | R1-R12 (EAST EUROPE) |
| | 1-9 (IVORY COAST) |
| | S1-S20 (OSCAR CABLE CH) |
| | S21-S23 (HYPER CABLE CH) |
| UHF | E21-E69 (EUROPE) |
| | S24-S41 (HYPER CABLE CH) |

**Aerial Input**
75 ohms, unbalanced
**Picture Tube**
20"
**Screen size**
404(W) x 480(D) x 303(H)mm
(16 x 19 x 12 in.)
**Video Input/Output**
1 Vp-p, 75 ohms
**Audio Input**
0.5 Vrms., 33 kohms more
**Audio Output**
0.5 Vrms., 2.2 kohms less
**Speaker**
76 mm(3 in.) round
**Operating Voltage**
100 – 240 VAC, 50/60 Hz
**Power Consumption**
85W
**Earphone jack**
Monaural-mini jack
**Operating temperature**
5°C – 40°C
**Operating humidity**
35% – 80%
**Dimensions**
520(W) x 479.5(D) x 425(H)mm
($20^1/_2$ x 19 x $16^3/_4$ in.)
**Weight**
18 kg (39.6 lbs.)

• Design and specifications are subject to change without notice.

S/M Code No. 09-974-183-1FP

NOTICES BEFORE REPAIRING

# To make the best use of this equipment, make sure to obey the following items when repairing (or mending).

1. Do not damage or melt the tunicate of the leading wire on the AC1 side, including the power supply code.
2. Do not soil or stain the letters on the spec. inscription plates, notice labels, fuse labels, etc.
3. When repairing the part extracted from the conducted side of the board pattern, fix it firmly with applying bond to the pattern and the part.
4. Restore the following items after repairing.

1) Conditions of soldering of the wires (especially, the distance on the AC1 side).
2) Conditions of wiring, bundling of wires, etc.
3) Types of the wries.
4) Attachment conditions of all types of the insulation.

5. After repairing, always measure the insulation resistance and perform the voltage-withstand test (See Fig-1).

1) The insulation resistance must be 7.0 to 9.5 MΩ when applying 500V per second.
2) In the voltage withstand test, apply 3.6 KV for 3 seconds and check that the GO lamp lights.

Insulation resistance: 7.0 to 9.5 MΩ (500 V/s)
Voltage-withstand: 3.6 KV for 3 or more seconds

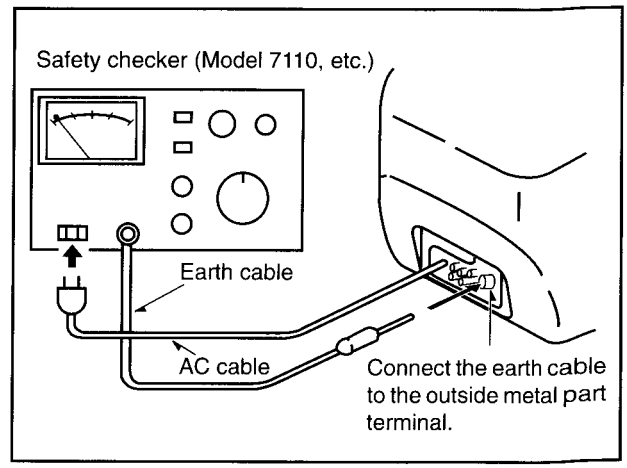



Fig-1

* Breaking current set to 5 mA.
* Connect the safety checker as shown in Fig-1, then measure the resistance and perform the test.
* Do not touch the equipment during testing.
* For details of the safety checker, refer to the supplied Operation manual.

## When servicing and checking on the TV, note the followings.

1. Keep the notices
   As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.
2. Avoid an electric shock.
   There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.
3. Use the designated parts.
   The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety.
   Therefore, the part which is replaced should be used the part which has the same character. Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a ! mark, the designated parts must be used.
4. Put parts and wires in the original position after assembling or wiring.
   There are parts which use the insulation material such as a tube or tape for safety, or which are assembled so that these parts do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.
5. Take care of the cathode-ray tube.
   By setting an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion.
   However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.
6. Avoid an X-lay.
   Safety is secured against an X-lay by considering about the cathode-ray tube and the high voltage peripheral circuit, etc. Therefore, when repairing the high voltage peripheral circuit, use the designated parts and do not change the circuit. Repairing except indicates causes rising of high voltage, and the cathode-ray tube emits an X-lay.
7. Perform a safety check after servicing.
   Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the places serviced.
8. Caution when replacing the CRT.
   KERJ2 and KERJ4 used different types of CRT.
   Make sure that CRT is correct type when replacing it. (Refer to the below table.)

| | CRT NAME |
|---|---|
| KERJ2 | CRT,A48QAD220X 02 |
| KERJ4 | CRT,51OUFB22-TC67 |

# DISASSEMBLY INSTRUCTIONS

## 1. HIGH-VOLTAGE CAP (ANODE CAP) REMOVAL

### 1-1. Cautions before Removing

**Discharge the anode voltage**

1) The anode voltage is not discharged completely from the CRT of this unit even after the power is turned off. Be sure to discharge the residual anode voltage before removing the anode cap.

**Do not use pliers**

2) Do not use pliers, etc. to remove the anode cap. If you used pliers and bent the hook to remove the cap, the spring characteristics of the hook could be lost, and when reinstalled, the cap would come off from the CRT anode button easily, causing an accident.

**Do not turn the anode cap**

3) If the anode cap is turned in the direction of its circumference, the hook is likely to come off.

### 1-2. Anode Cap Removal

Discharge the anode voltage. (See Fig-1)

1) Connect a flat-bladed screwdriver to the CRT GND via an alligator clip.
2) Use a tester to check the end of the screwdriver and ground of the TV for continuity.
3) Touch the hook with the end of the screwdriver.

Caution: Be careful not to damage the anode cap.

4) Turn over the anode cap. (See Fig-2)

Caution: Be careful not to damage the anode cap.

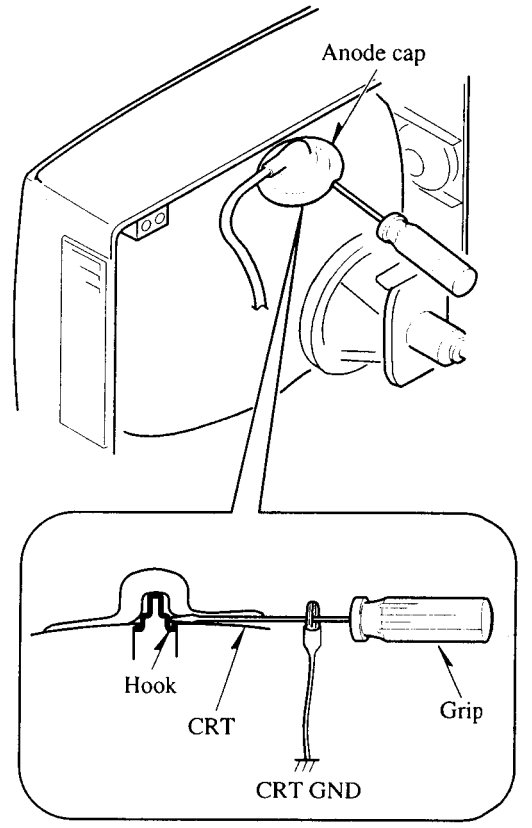



Fig-1

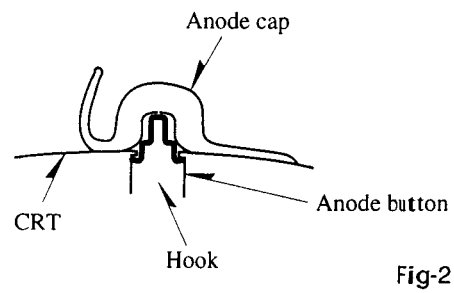



Fig-2

5) Push the anode cap with your thumb in the direction of arrow ① as shown in the Figure, then lift the cap in the direction of arrow ② to release the hook on one side. (See Fig-3)

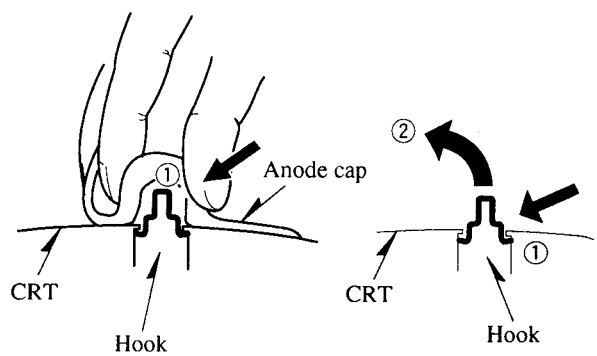



Fig-3

6) Turn over the anode cap on the side where the hook was released and pull out the cap in the direction opposite to that in which the cap was pushed. (See Fig-4)

Caution: Do not pull out the anode cap straight up. Do not pull the cap forcibly. After removing the cap, check that the hook is not deformed.

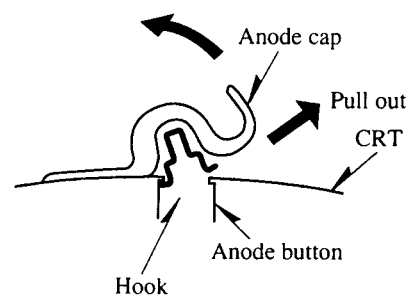



Fig-4

## 2. ANODE CAP REINSTALLATION

Observe the Cautions carefully so that no accident occurs due to a defect in installing the anode cap and so it does not come off.

### 2-1. Cautions before Reinstalling

| Never turn the anode cap after installing it |
|---|
| Never re-use the hook when it has been deformed |

1) If the anode cap is turned after it is installed, it may come off. Therefore, arrange the high-voltage cable before attaching the anode cap. (See Fig-1-1)
2) If you have attached the anode cap before arranging the high-voltage cable, arrange the cable carefully so the cap does not turn.
3) Perform the wire processing as shown in Fig-1-2 after anode cap is attached.

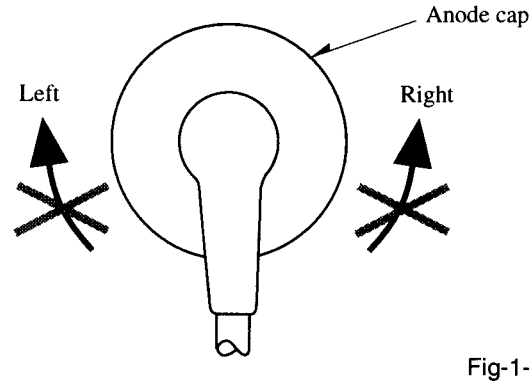
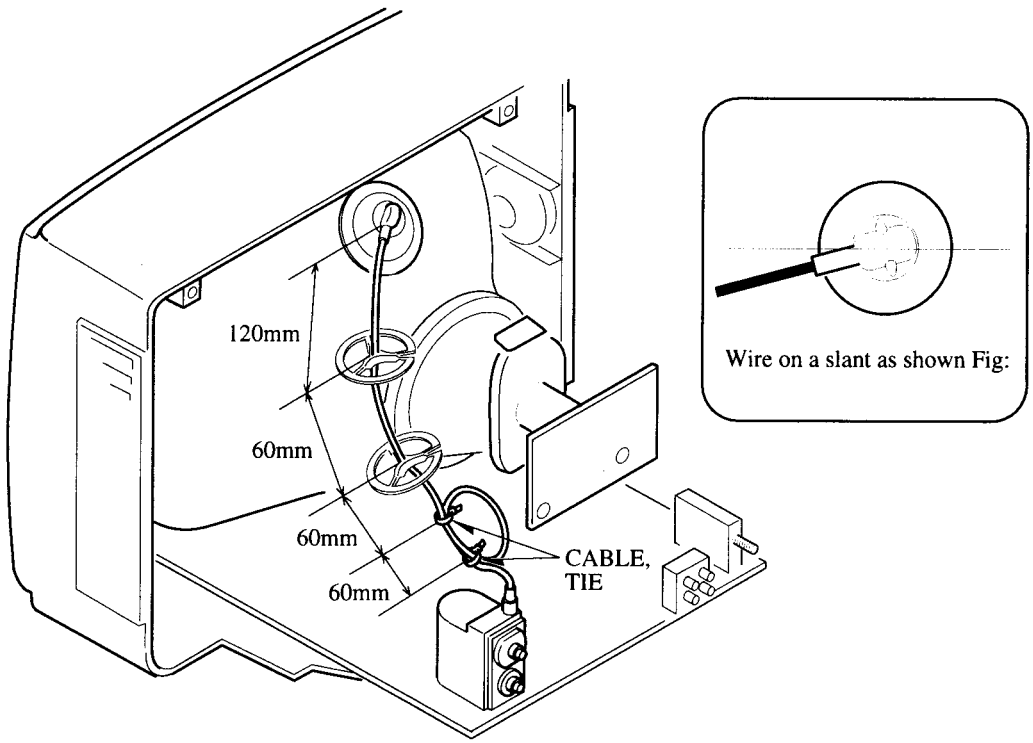



Fig-1-1




Confirm that anode cap does not contact with CRT, DY ASSY and speaker.

Fig-1-2

## 2-2. Anode cap reinstallation

1) Use a clean cloth moistened slightly with alcohol to clean the installation section. (See Fig-2)

Caution: Check that the installation section is free from dust, foreign matter, etc.

2) Coat the anode cap installation circumference with an appropriate amount of the specified silicone grease (KS-650N). (See Fig-2)

Caution: Be careful that silicone grease does not enter the anode button.

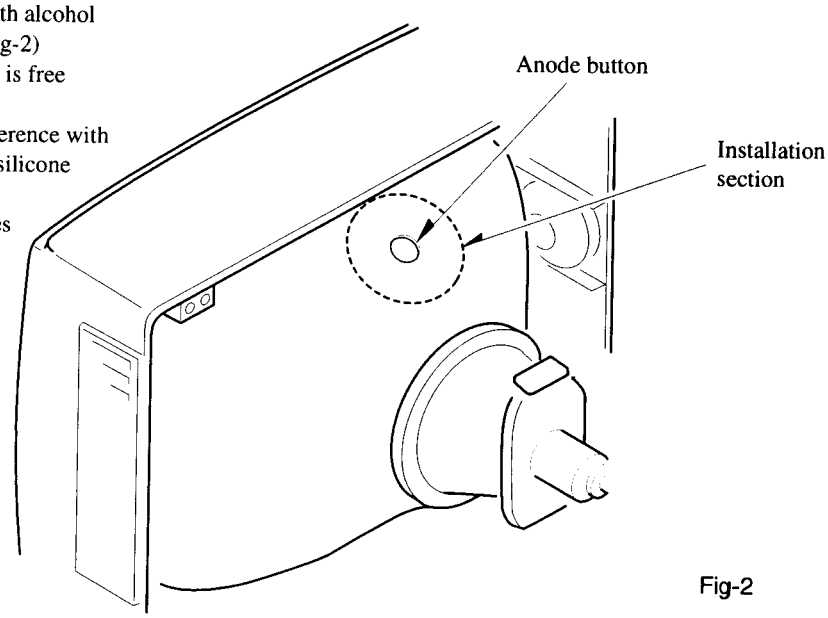



Fig-2

3) Eliminate twisting, etc. of the high-voltage cable and arrange it so that no twisting occurs. (See Fig-3)

Caution: If the cable is not arranged correctly, the anode cap could turn and cause an installation defect.

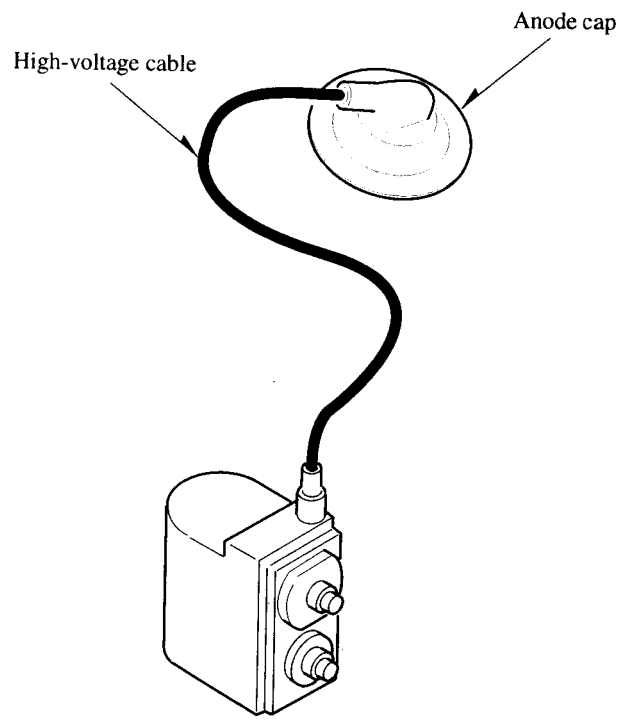



Fig-3

4) Turn over the rubber cap symmetrically on the left and right. (See Fig-4)

Caution: Take great care not to damage the anode cap.

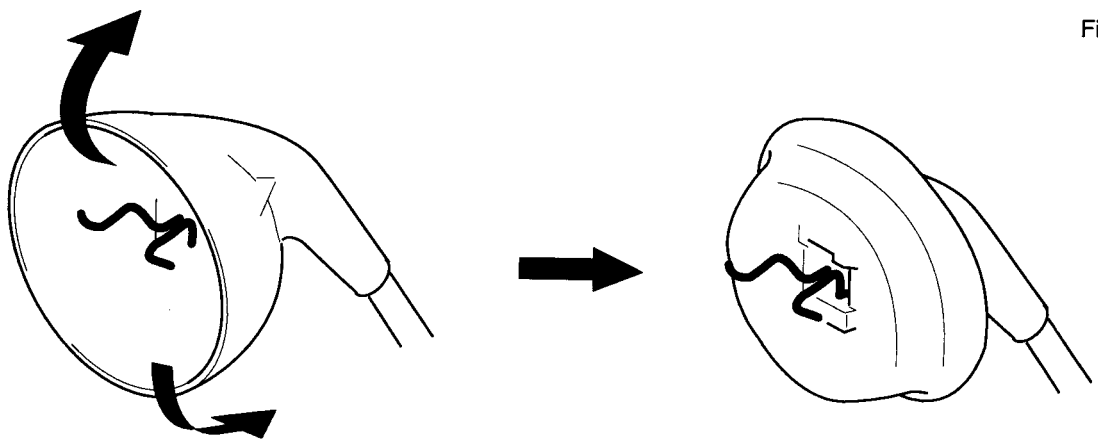


Fig-4

5) Fit your forefinger over the projection at the center of the cap and hold the cap between your thumb and middle finger. (See Fig-5-1)
6) Apply the hook on one side to the anode button as shown in the figure. (See Fig-5-2)

Caution: Check that the hook is held securely.

7) Apply the hook on the other side to the anode button as shown in Fig-5-3.

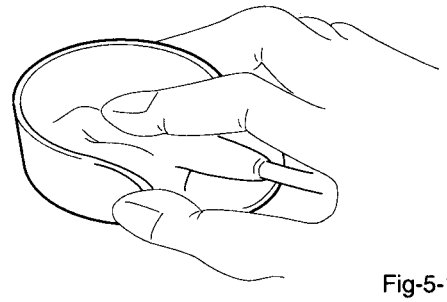
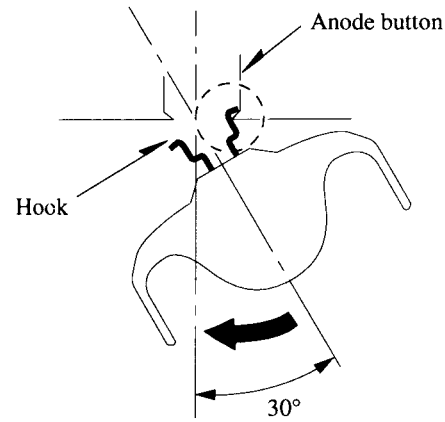


Fig-5-1



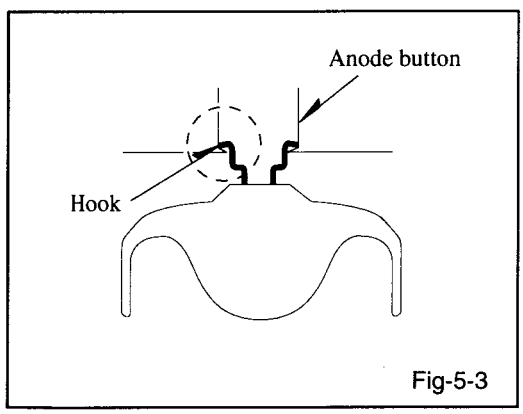




Fig-5-3

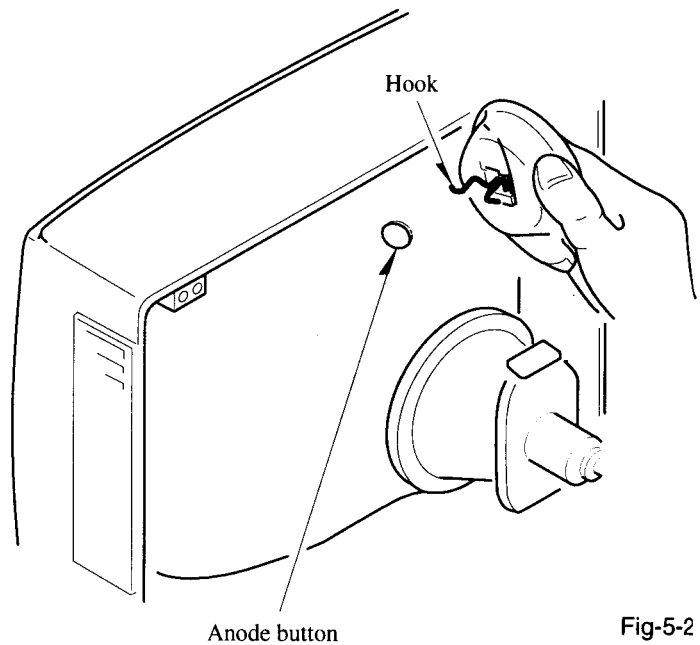



Fig-5-2

8) Pull the anode cap slightly with the rubber cap turned over and visually check that the hook is engaged securely.
9) Release your hand from the rubber cap of the anode cap.

Caution: Cover the anode cap so that it does not lift.

10) Hold the skirt of the anode cap slightly to improve the close contact between the cap and CRT.
11) Check that the anode cap is in close contact with the CRT. (See Fig-6)

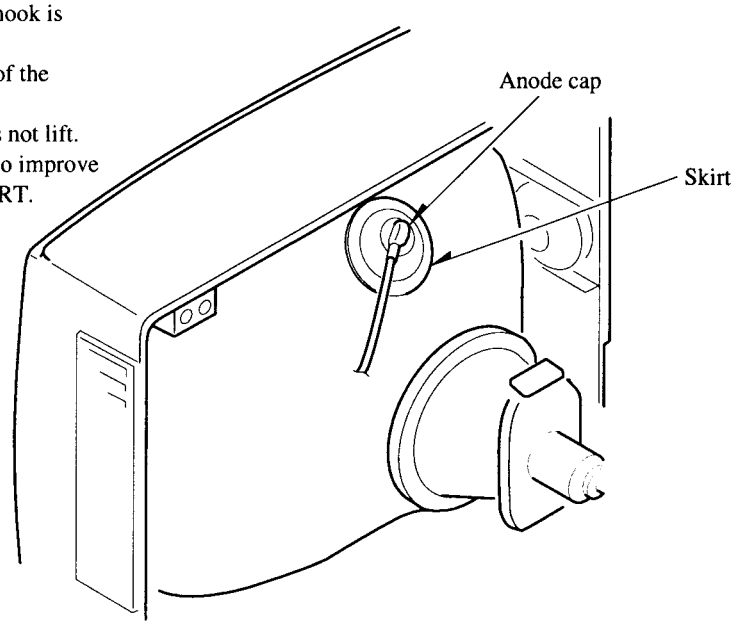



Fig-6

## 3. CASE REMOVAL

### 3-1. Rear Cabinet Removal (See Fig-1)

1) Remove four screws ① then remove the rear cabinet in the direction of the arrow.

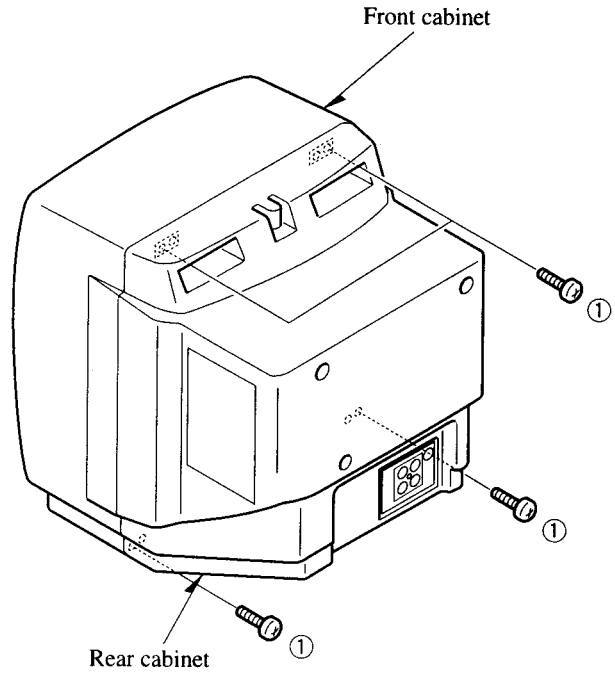



Fig-1

### 3-2. Neck C.B (PWB, NK) Removal (See Fig-2)

1) Disconnect CN553 (CRT GND).
2) Remove the Neck C.B in the direction of arrow ①.

### 3-3. Main C.B (PWB, MAIN) Removal (See Fig-2)

1) Remove speaker in the direction of arrows ②.
2) Pull out the Main C.B in the direction of arrow ③.

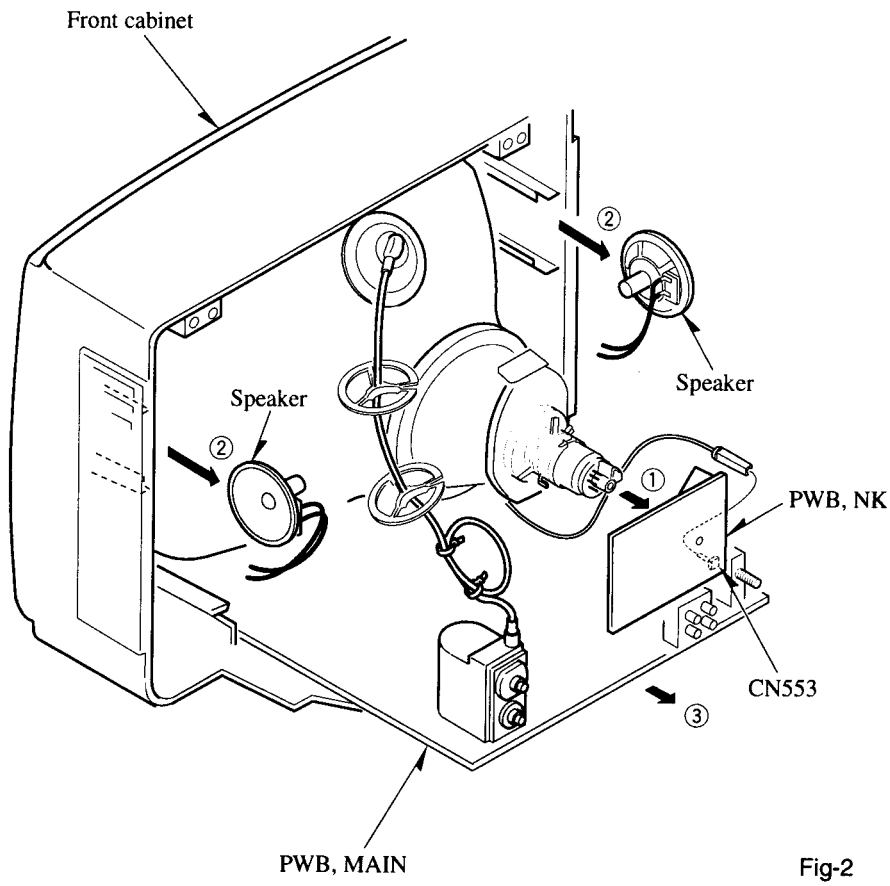



Fig-2

# ELECTRICAL MAIN PARTS LIST

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

| REF. NO. | PART NO. | KANRI NO. | DESCRIPTION |
|---|---|---|---|
| IC | | | |
| | 86-LB7-621-010 | | IC,M37221M3-150SP |
| | 87-A20-413-080 | | IC,BMR-4201 |
| | 87-A20-503-010 | | IC,AT24C02-10PI |
| | 87-A20-371-080 | | IC,KA33V |
| | 87-A20-436-010 | | IC,LA7565N |
| | 87-070-080-010 | | IC,TA8759BN |
| | 87-027-938-010 | | IC,TC4053BP |
| | 87-070-117-010 | | IC,AN5265 |
| | 87-070-237-010 | | IC,LA7832 |
| | 87-A20-517-010 | | IC,STR-S6707 |
| ⚠ | 87-A30-096-010 | | P-TR,TLP721F |
| | 87-A30-041-010 | | TR,SE115N |
| | 87-A20-525-010 | | IC,KIA7812PI |
| | 87-A20-364-010 | | IC,KIA7809PI |
| | 87-020-881-080 | | IC,NJM78L05A |
| ⚠ | 87-001-132-080 | | PROTECTOR,IC ICP-N38 |
| | 87-A90-352-010 | | RCR UNIT,PIC-21043SP |
| TRANSISTOR | | | |
| | 87-A30-065-080 | | TR,2SC2785FE |
| | 87-026-218-080 | | TR,DTC144ES |
| | 87-A30-121-080 | | TR,DTC323TS |
| | 87-A30-066-080 | | TR,2SA1175FE |
| | 87-A30-090-080 | | FET,2SK2541 |
| | 84-LB2-699-080 | | TR,2SC945A |
| | 87-026-502-080 | | TR,DTC144TS |
| | 89-342-174-510 | | TR,2SC4217(D/E) |
| | 89-334-674-580 | | TR,2SC3467(D/E) |
| | 87-A30-050-010 | | TR,2SD2499 |
| | 87-A30-114-080 | | TR,2SD1207T |
| DIODE | | | |
| | 87-017-437-080 | | DIODE,1N4148M |
| | 87-070-033-080 | | ZENER,UZ7.5BS |
| | 87-070-035-080 | | ZENER,UZ12BSS |
| | 87-070-034-080 | | ZENER,UZ9.1BS |
| | 87-070-274-080 | | DIODE,1N4003 SEM |
| | 87-A40-284-080 | | DIODE,ERA22-04V1 |
| ⚠ | 87-A40-324-010 | | DIODE,2KBP04M-PM10 |
| ⚠ | 87-070-111-060 | | DIODE,RU30A |
| | 87-017-354-080 | | DIODE,RU3 |
| MAIN C.B | | | |
| C1 | 87-018-109-080 | | CAP,TC U 22P-50 J SL UP050 |
| C2 | 87-018-109-080 | | CAP,TC U 22P-50 J SL UP050 |
| C3 | 87-018-109-080 | | CAP,TC U 22P-50 J SL UP050 |
| C4 | 87-018-109-080 | | CAP,TC U 22P-50 J SL UP050 |
| C5 | 87-018-109-080 | | CAP,TC U 22P-50 J SL UP050 |
| C6 | 87-018-109-080 | | CAP,TC U 22P-50 J SL UP050 |
| C7 | 87-018-123-080 | | CAP,TC U 220P-50 K B UP050 |
| C8 | 87-018-123-080 | | CAP,TC U 220P-50 K B UP050 |
| C9 | 87-018-134-080 | | CAP,TC U 0.01-16 N Y UP050 |
| C10 | 87-A10-373-080 | | CAP,E 220-6.3 M SSL |
| C11 | 87-016-637-080 | | CAP,E 10-50 M SSL |
| C12 | 87-018-119-080 | | CAP,TC U 100P-50 K B UP050 |
| C13 | 87-016-629-080 | | CAP,E 0.1-50 M SSL |
| C16 | 87-018-131-080 | | CAP,TC U 1000P-50 K B UP050 |
| C17 | 87-018-119-080 | | CAP,TC U 100P-50 K B UP050 |
| C18 | 87-018-119-080 | | CAP,TC U 100P-50 K B UP050 |
| C19 | 87-018-119-080 | | CAP,TC U 100P-50 K B UP050 |
| C23 | 87-016-633-080 | | CAP,E 1-50 M SSL |
| C25 | 87-016-636-080 | | CAP,E 4.7-50 M SSL |
| C26 | 87-016-636-080 | | CAP,E 4.7-50 M SSL |
| C27 | 87-016-633-080 | | CAP,E 1-50 M SSL |
| C28 | 87-016-633-080 | | CAP,E 1-50 M SSL |
| C29 | 87-016-636-080 | | CAP,E 4.7-50 M SSL |
| C30 | 87-018-134-080 | | CAP,TC U 0.01-16 N Y UP050 |
| C40 | 87-018-131-080 | | CAP,TC U 1000P-50 K B UP050 |
| C101 | 87-016-633-080 | | CAP,E 1-50 M SSL |
| C102 | 87-016-583-080 | | CAP,E 100-25 M SSL |
| C103 | 87-018-134-080 | | CAP,TC U 0.01-16 N Y UP050 |
| C212 | 87-016-633-080 | | CAP,E 1-50 M SSL |
| C213 | 87-016-583-080 | | CAP,E 100-25 M SSL |
| C214 | 87-018-134-080 | | CAP,TC U 0.01-16 N Y UP050 |
| C216 | 87-016-632-080 | | CAP,E 0.47-50 M SSL |
| C218 | 89-663-725-080 | | CAP,TC 4700P-50 N D UP125 |
| C219 | 87-018-134-080 | | CAP,TC U 0.01-16 N Y UP050 |
| C221 | 87-018-134-080 | | CAP,TC U 0.01-16 N Y UP050 |
| C222 | 87-018-121-080 | | CAP,TC U 150P-50 K B UP050 |
| C223 | 87-016-633-080 | | CAP,E 1-50 M SSL |
| C225 | 87-018-119-080 | | CAP,TC U 100P-50 K B UP050 |
| C301 | 87-018-122-080 | | CAP,TC U 180P-50 K B UP050 |
| C302 | 87-018-122-080 | | CAP,TC U 180P-50 K B UP050 |
| C303 | 87-018-122-080 | | CAP,TC U 180P-50 K B UP050 |
| C306 | 87-016-627-080 | | CAP,E 47-16 M SSL |
| C307 | 87-018-209-080 | | CAP,TC U 0.1-50 Z F UP050 |
| C309 | 87-018-134-080 | | CAP,TC U 0.01-16 N Y UP050 |
| C310 | 87-018-134-080 | | CAP,TC U 0.01-16 N Y UP050 |
| C311 | 87-018-134-080 | | CAP,TC U 0.1-50 Z F UP050 |
| C312 | 87-016-632-080 | | CAP,E 0.47-50 M SSL |
| C313 | 87-018-134-080 | | CAP,TC U 0.01-16 N Y UP050 |
| C314 | 87-018-122-080 | | CAP,TC U 180P-50 K B UP050 |
| C315 | 87-018-107-080 | | CAP,TC U 18P-50 J SL UP050 |
| C316 | 87-018-131-080 | | CAP,TC U 1000P-50 K B UP050 |
| C320 | 87-010-529-080 | | CAP,E 1-50 M BP |
| C327 | 87-016-575-080 | | CAP,E 220-16 M SSL |
| C328 | 87-018-195-080 | | CAP,TC U 1200P-16 M X UP050 |
| C329 | 87-016-633-080 | | CAP,E 1-50 M SSL |
| C330 | 87-018-124-080 | | CAP,TC U 270P-50 K B UP050 |
| C332 | 87-016-635-080 | | CAP,E 3.3-50 M SSL |
| C335 | 87-016-627-080 | | CAP,E 47-16 M SSL |
| C336 | 87-018-134-080 | | CAP,TC U 0.01-16 N Y UP050 |
| C340 | 87-016-632-080 | | CAP,E 0.47-50 M SSL |
| C341 | 87-016-632-080 | | CAP,E 0.47-50 M SSL |
| C342 | 87-016-632-080 | | CAP,E 0.47-50 M SSL |
| C344 | 87-016-633-080 | | CAP,E 1-50 M SSL |
| C347 | 87-016-636-080 | | CAP,E 4.7-50 M SSL |
| C348 | 87-018-134-080 | | CAP,TC U 0.01-16 N Y UP050 |
| C349 | 87-018-134-080 | | CAP,TC U 0.01-16 N Y UP050 |
| C350 | 87-018-123-080 | | CAP,TC U 220P-50 J B UP050 |
| C351 | 87-016-633-080 | | CAP,E 1-50 M SSL |
| C352 | 87-016-632-080 | | CAP,E 0.47-50 M SSL |
| C354 | 87-018-134-080 | | CAP,TC U 0.01-16 N Y UP050 |
| C356 | 87-018-122-080 | | CAP,TC U 180P-50 K B UP050 |
| C357 | 87-016-637-080 | | CAP,E 10-50 M SSL |
| C359 | 87-018-134-080 | | CAP,TC U 0.01-16 N Y UP050 |
| C360 | 87-016-637-080 | | CAP,E 10-50 M SSL |
| C361 | 87-016-633-080 | | CAP,E 1-50 M SSL |
| C363 | 87-016-622-080 | | CAP,E 470-10 M SSL |
| C364 | 87-016-637-080 | | CAP,E 10-50 M SSL |
| C370 | 87-016-625-080 | | CAP,E 22-16 M SSL |
| C371 | 87-016-636-080 | | CAP,E 4.7-50 M SSL |
| C372 | 87-016-636-080 | | CAP,E 4.7-50 M SSL |
| C373 | 87-018-115-080 | | CAP,TC U 47P-50 J SL UP050 |
| C374 | 87-018-134-080 | | CAP,TC U 0.01-16 N Y UP050 |
| C375 | 87-018-134-080 | | CAP,TC U 0.01-16 N Y UP050 |
| C376 | 87-A10-209-010 | | CAP,CER 0.01-50 M |
| C377 | 87-016-582-080 | | CAP,E 47-25 M SSL |
| C378 | 87-016-633-080 | | CAP,E 1-50 M SSL |
| C379 | 87-016-636-080 | | CAP,E 4.7-50 M SSL |
| C381 | 87-016-637-080 | | CAP,E 10-50 M SSL |
| C382 | 87-016-637-080 | | CAP,E 10-50 M SSL |
| C399 | 87-A10-211-010 | | CAP,CER 0.1-50 M |
| C401 | 87-016-577-080 | | CAP,E 470-16 M SSL |

| REF. NO. | PART NO. | KANRI NO. | DESCRIPTION |
|---|---|---|---|
| C402 | 87-016-633-080 | | CAP,E 0.47-50 M SSL |
| C403 | 87-016-587-080 | | CAP,E 1000-25 M SSL |
| C404 | 87-016-583-080 | | CAP,E 100-25 M SSL |
| C405 | 87-016-636-080 | | CAP,E 4.7-50 M SSL |
| C406 | 87-A10-210-010 | | CAP,CER 0.047-50 M |
| C407 | 87-018-209-080 | | CAP,TC U 0.1-50 Z F UP050 |
| C408 | 87-016-578-080 | | CAP,E 1000-16 M SSL |
| C429 | 87-016-637-080 | | CAP,E 10-50 M SSL |
| C431 | 87-016-633-080 | | CAP,E 1-50 M SSL |
| C501 | 87-018-127-080 | | CAP,TC U 470P-50 K B UP050 |
| C502 | 87-018-134-080 | | CAP,TC U 0.01-16 N Y UP050 |
| C503 | 87-016-633-080 | | CAP,E 1-50 M SSL |
| C506 | 87-A10-408-080 | | CAP,CER 560P-500 K YP |
| C507 | 87-012-357-010 | | CAP,CER 47P-500 J CH DD10 |
| C508 | 87-018-131-080 | | CAP,TC U 1000P-50 K B UP050 |
| C509 | 87-016-641-080 | | CAP,E 100-50 M SSL |
| C510 | 87-016-592-080 | | CAP,E 220-35 M SSL |
| C513 | 87-016-587-080 | | CAP,E 1000-25 M SSL |
| C514 | 87-016-633-080 | | CAP,E 1-50 M SSL |
| C603 | 87-010-976-010 | | CAP,CER 1000P-500 K B DD10 |
| C605 | 87-016-480-010 | | CAP,M/P 0.39-200J DHS |
| C606 | 87-016-357-010 | | CAP,M/P 0.01-1.25K PH |
| C608 | 87-016-637-080 | | CAP,E 10-50 M SSL |
| C609 | 87-010-709-080 | | CAP,0.22-50M BP SM |
| C620 | 87-016-647-080 | | CAP,E 47-160 M SSL |
| ⚠ C801 | 87-A10-470-010 | | CAP,M/P 0.22-275 K MKT1.40 |
| ⚠ C802 | 87-A10-470-010 | | CAP,M/P 0.22-275 K MKT1.40 |
| C804 | 87-016-515-080 | | CAP,CER 1000P-1K K B DE |
| C805 | 87-016-515-080 | | CAP,CER 1000P-1K K B DE |
| C807 | 87-016-637-080 | | CAP,E 10-50 M SSL |
| ⚠ C808 | 87-A10-413-010 | | CAP,CER 2200P-4K ME KX |
| C809 | 87-016-515-080 | | CAP,CER 1000P-1K K B DE |
| ⚠ C810 | 87-A10-372-090 | | CAP,E 150U-400 SMH |
| C811 | 87-016-576-080 | | CAP,E 330-16 M SSL |
| ⚠ C812 | 87-019-113-090 | | CAP,CER 2200P-400 M F KC(FMG) |
| C813 | 87-A10-469-080 | | CAP,CER 2200P-500 K B DD10 |
| C814 | 87-A10-238-010 | | CAP,M/P 1000P-1.6 K J DKR |
| C818 | 87-016-572-080 | | CAP,E 470-6.3 M SSL |
| C820 | 87-010-976-080 | | CAP,CER 1000P-500 K B DD10 |
| C821 | 87-016-588-080 | | CAP,E 2200-25 M SSL |
| C825 | 87-016-588-080 | | CAP,E 2200-25 M SSL |
| C830 | 87-012-386-010 | | CAP,CER 470P-2K K BN DE |
| C831 | 87-016-599-080 | | CAP,E 10-250 M SSL |
| C832 | 87-016-594-080 | | CAP,E 1000-35 M SSL |
| C833 | 87-010-976-010 | | CAP,CER 1000P-500 K B DD10 |
| C835 | 87-016-584-080 | | CAP,E 220-25 M SSL |
| C837 | 87-016-637-080 | | CAP,E 10-50 M SSL |
| C838 | 87-016-515-080 | | CAP,CER 1000P-1K K B DE |
| C839 | 87-016-578-080 | | CAP,E 1000-16 M SSL |
| C840 | 87-016-649-080 | | CAP,E 220-160 M SSL |
| D5 | 87-070-110-010 | | LED,SLP-181B-51 RED |
| DL301 | 84-LB3-638-010 | | DL,ADL-CP144E |
| DL302 | 87-A90-370-010 | | DELAY LINE,ELB10Z334 |
| ⚠ F801 | 87-035-458-010 | | FUSE,4A 250V T 218 |
| FB601 | 87-003-223-080 | | F-BEAD,-3.4-7.5 BL02RN2 |
| FB801 | 87-003-223-080 | | F-BEAD,-3.4-7.5 BL02RN2 |
| FB802 | 87-003-223-080 | | F-BEAD,-3.4-7.5 BL02RN2 |
| ⚠ FC801 | 87-A90-160-080 | | FUSE CLAMP,FC 51F |
| ⚠ FC802 | 87-A90-160-080 | | FUSE CLAMP,FC 51F |
| FL203 | 87-A90-223-080 | | FLTR, SFSH6.0MCB |
| FL205 | 87-008-578-080 | | FLTR,TPS6.5MB2 |
| FL206 | 87-008-577-080 | | FLTR,TPS5.5MB2 |
| FL301 | 84-LB3-668-010 | | FLTR,SECAM DET |
| FL302 | 84-LB3-668-010 | | FLTR,SECAM DET |
| FL304 | 82-JT2-611-010 | | FLTR, SECAM REF |
| FL305 | 84-LB3-622-010 | | FLTR,BELL 2 S-10E |
| J401 | 87-A60-323-010 | | JACK,PIN 4P Y-BLK |
| J402 | 87-A60-329-010 | | JACK,3.5 BLK MONO W/SW |
| J403 | 87-A60-370-010 | | JACK,PIN 2P BLK-Y W/SW |
| L101 | 87-005-610-080 | | COIL,47UH J LAV35 |
| L206 | 87-003-144-080 | | COIL,6.8UH K LAL02 |
| L207 | 87-003-102-080 | | COIL,10UH K LAL02 |
| L210 | 86-LB7-655-010 | | COIL,VCO 38.0MHZ LA7565N |
| L221 | 87-003-102-080 | | COIL,10UH K LAL02 |
| L303 | 82-JT2-608-010 | | FLTR,DL PHASE |
| L304 | 87-003-145-080 | | COIL,8.2UH K LAL02 |
| L306 | 87-005-611-080 | | COIL,56UH J LAV35 |
| L308 | 87-003-147-080 | | COIL,22UH K LAL02 |
| L309 | 87-003-286-080 | | COIL,56UH K LAL02 |
| L310 | 87-005-602-080 | | COIL,10UH J LAV35 |
| L801 | 87-005-770-080 | | COIL,47UH K #7607 |
| ⚠ L802 | 84-LB3-670-010 | | FLTR,LINE HL-24-822 |
| ⚠ PT801 | 86-LB4-655-010 | | PT,KER S/W TRANS |
| ⚠ R110 | 87-A00-164-090 | | RES,M/F 12K-2W J RSF(S) |
| R326 | 87-A00-067-090 | | RES,M/F 6.8K-3W J |
| R423 | 87-025-569-010 | | RES,M/F 47-1/2 WJ |
| ⚠ R436 | 87-029-160-060 | | RES,FUSE 2.2-1W J |
| R608 | 87-025-598-010 | | RES,CEM 2.2K-5W J |
| R609 | 88-144-472-080 | | RES,SD 4.7K-1/2W K |
| R801 | 87-A00-264-010 | | RES,CEM 1.2-5W K T |
| R802 | 87-A00-171-090 | | RES,M/F 82K-3W J |
| R806 | 87-A00-208-090 | | RES,M/F 22-1/2W J RSF(S) |
| R808 | 87-A00-265-010 | | RES,CEM 1.5-5W K T |
| R811 | 87-A00-216-090 | | RES,M/F 0.33-2W J RSF(S) |
| R812 | 87-A00-224-090 | | RES,SD8.2M-1 WJ CE |
| ⚠ R818 | 87-A00-052-060 | | RES,FUSE 3.9-1 W |
| ⚠ R821 | 87-A00-052-060 | | RES,FUSE 3.9-1 W |
| ⚠ R828 | 87-A00-291-080 | | RES,FUSE 100-1/8 W |
| ⚠ R829 | 87-A00-272-080 | | RES,FUSE 1.8K-1/4W |
| SF201 | 87-A90-337-010 | | FLTR,SAW OFW-K2959M |
| SFR1 | 87-024-177-080 | | SFR,220K H RH0638C |
| SFR2 | 87-024-176-080 | | SFR,100K H RH0638C |
| SFR201 | 87-024-173-080 | | SFR,22K H RH0638C |
| SFR301 | 87-024-168-080 | | SFR,1K H RH0638C |
| SFR302 | 87-024-168-080 | | SFR,1K H RH0638C |
| SFR501 | 87-024-175-080 | | SFR,47K H RH0638C |
| SW2 | 87-036-267-080 | | SW,TACT SKHVBK |
| SW3 | 87-036-267-080 | | SW,TACT SKHVBK |
| SW4 | 87-036-267-080 | | SW,TACT SKHVBK |
| SW5 | 87-036-267-080 | | SW,TACT SKHVBK |
| SW6 | 87-036-267-080 | | SW,TACT SKHVBK |
| ⚠ SW801 | 87-A90-364-010 | | SW,PUSH SDDLB1-C-D-2 |
| ⚠ T601 | 84-LB3-651-010 | | TRANS,HD MS-101N |
| ⚠ T602 | 84-LB2-606-010 | | FBT, HFL1530G |
| ⚠ TH801 | 87-A90-379-010 | | THMS,PH451C262BG180N270 |
| TU101 | 86-LB7-651-010 | | TU UNIT, TUAIF4EG-751 |
| X1 | 87-030-212-080 | | VIB,CER 8.000MHZ CST |
| X201 | 87-A70-043-010 | | VIB,CER 503KHZ CSBE5 |
| X301 | 87-A70-054-080 | | VIB,XTAL 4.43MHZ AQC-1018 |
| X302 | 87-030-327-010 | | VIB,CER 503.500KHZ CSB F30 |
| X303 | 87-A70-007-080 | | VIB,XTAL 3.58MHZ AQC-1001 |

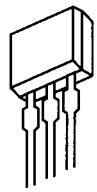
NK C.B

| | | | |
|---|---|---|---|
| ⚠ C551 | 87-010-976-080 | | CAP,CER 1000P-500 K B DD10 |
| ⚠ C552 | 87-016-037-060 | | CAP,CER 1000P-2K K BN DE |
| C553 | 87-018-125-080 | | CAP,TC U 330P-50 K B UP050 |
| C554 | 87-018-125-080 | | CAP,TC U 330P-50 K B UP050 |
| C555 | 87-018-129-080 | | CAP,TC U 680P-50 K B UP050 |
| C557 | 87-016-637-080 | | CAP,E 10-50 M SSL |
| L551 | 87-005-485-080 | | COIL,100UH J FLR50 |
| ⚠ R551 | 87-A00-041-060 | | RES,M/F 12K-2W J L-FORMING |
| ⚠ R552 | 87-A00-041-060 | | RES,M/F 12K-2W J L-FORMING |
| ⚠ R553 | 87-A00-041-060 | | RES,M/F 12K-2W J L-FORMING |
| SFR551 | 87-024-171-080 | | SFR,4.7K H RH0638C |
| SFR552 | 87-024-171-080 | | SFR,4.7K H RH0638C |
| SFR553 | 87-024-171-080 | | SFR,4.7K H RH0638C |
| SFR554 | 87-024-167-080 | | SFR,470 H RH0638C |
| SFR555 | 87-024-167-080 | | SFR,470 H RH0638C |
| SO551 | 86-LBR-670-010 | | SOCKET,CRT 9P HPS1521 |

## TRANSISTOR ILLUSTRATION

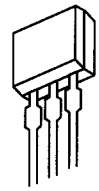
E C B

2SC3467
2SC945A



S D G

2SK2541



E C B

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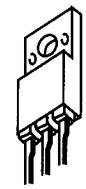
2SA1175



B C E

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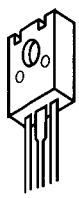
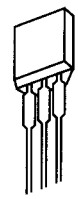


E C B

2SC4217

E C B

2SD1207T



E C B

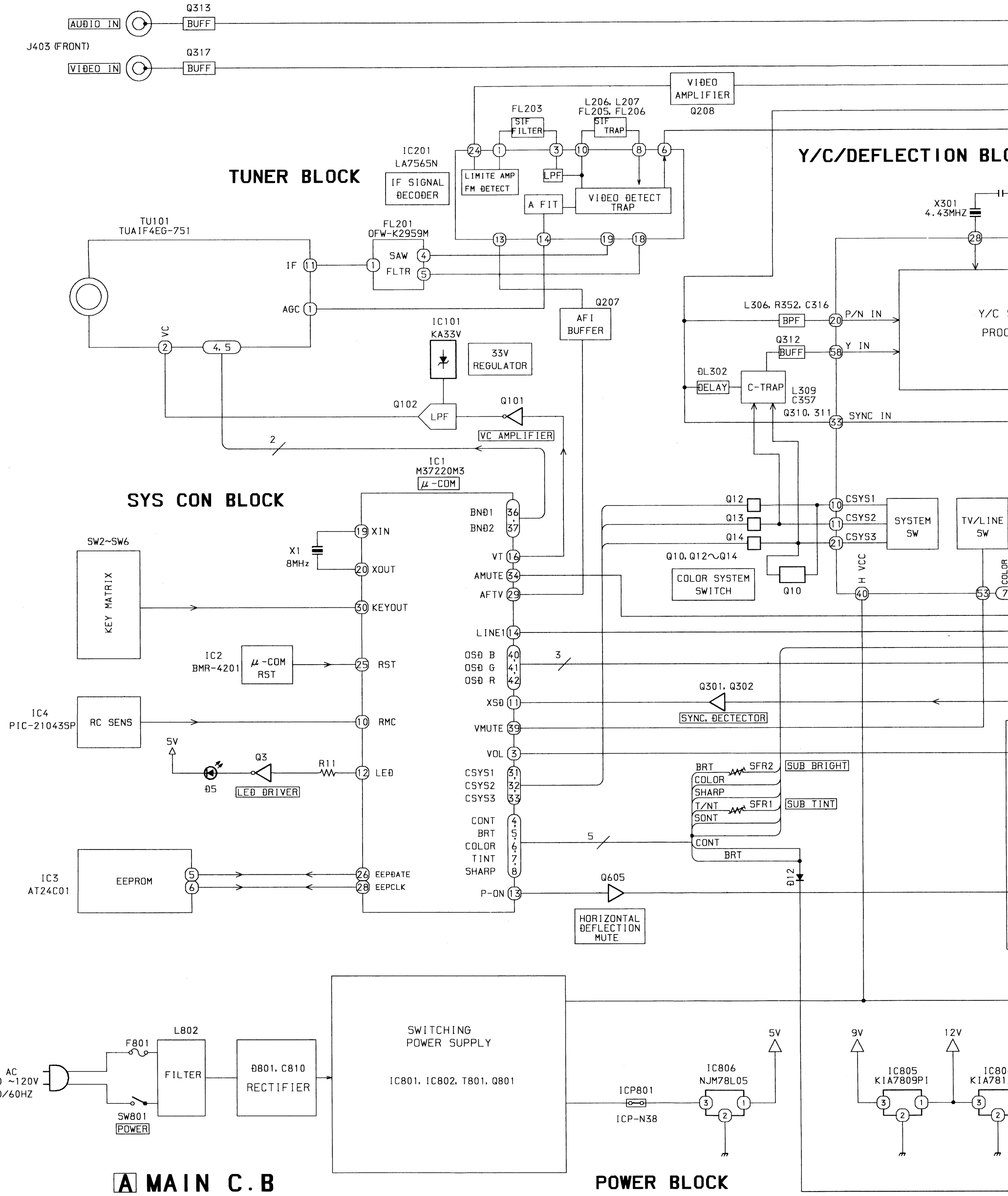
DTC144ES
DTC323TS
DTC144TS

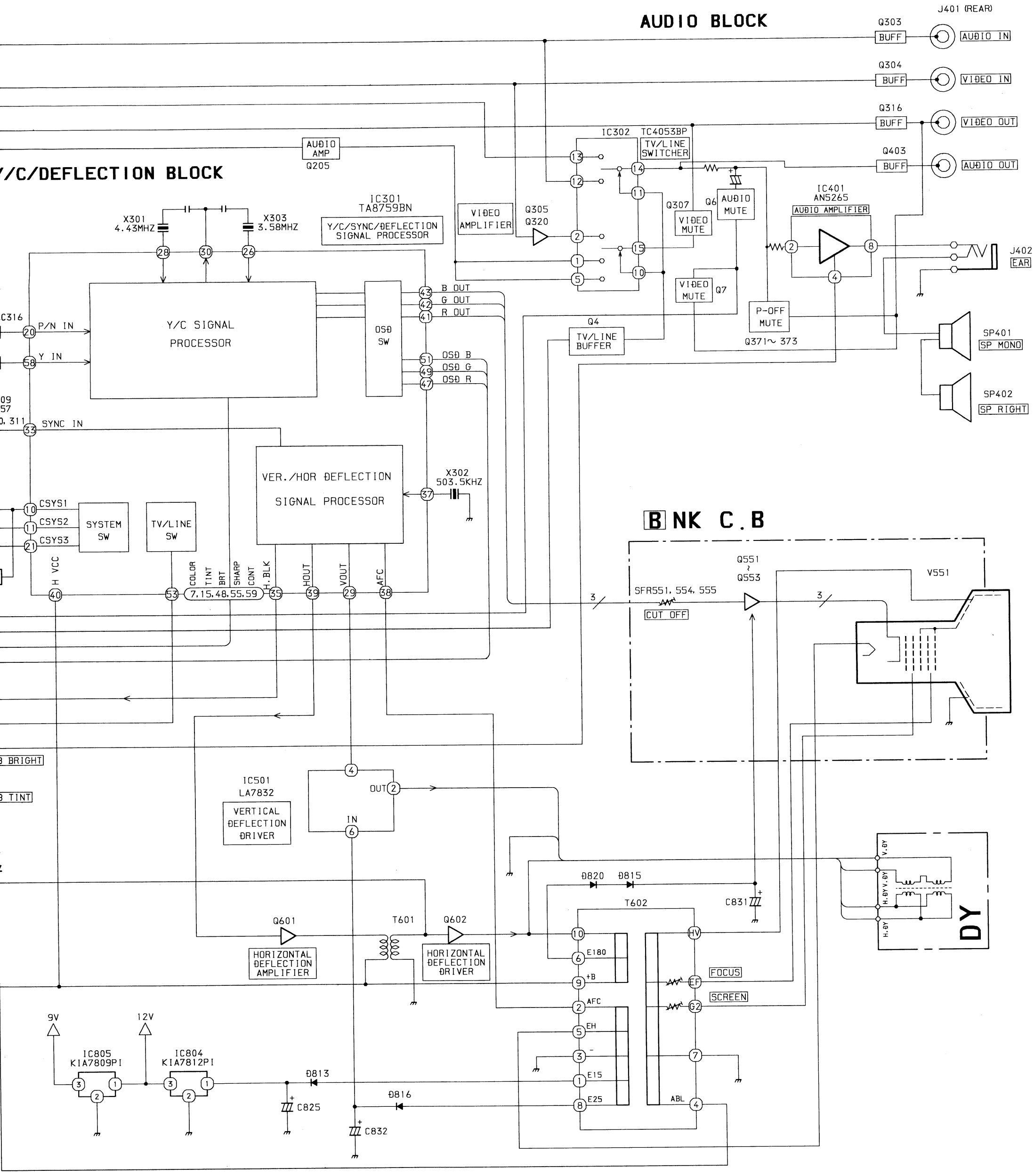
## ACCESSORIES / PACKAGE LIST

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

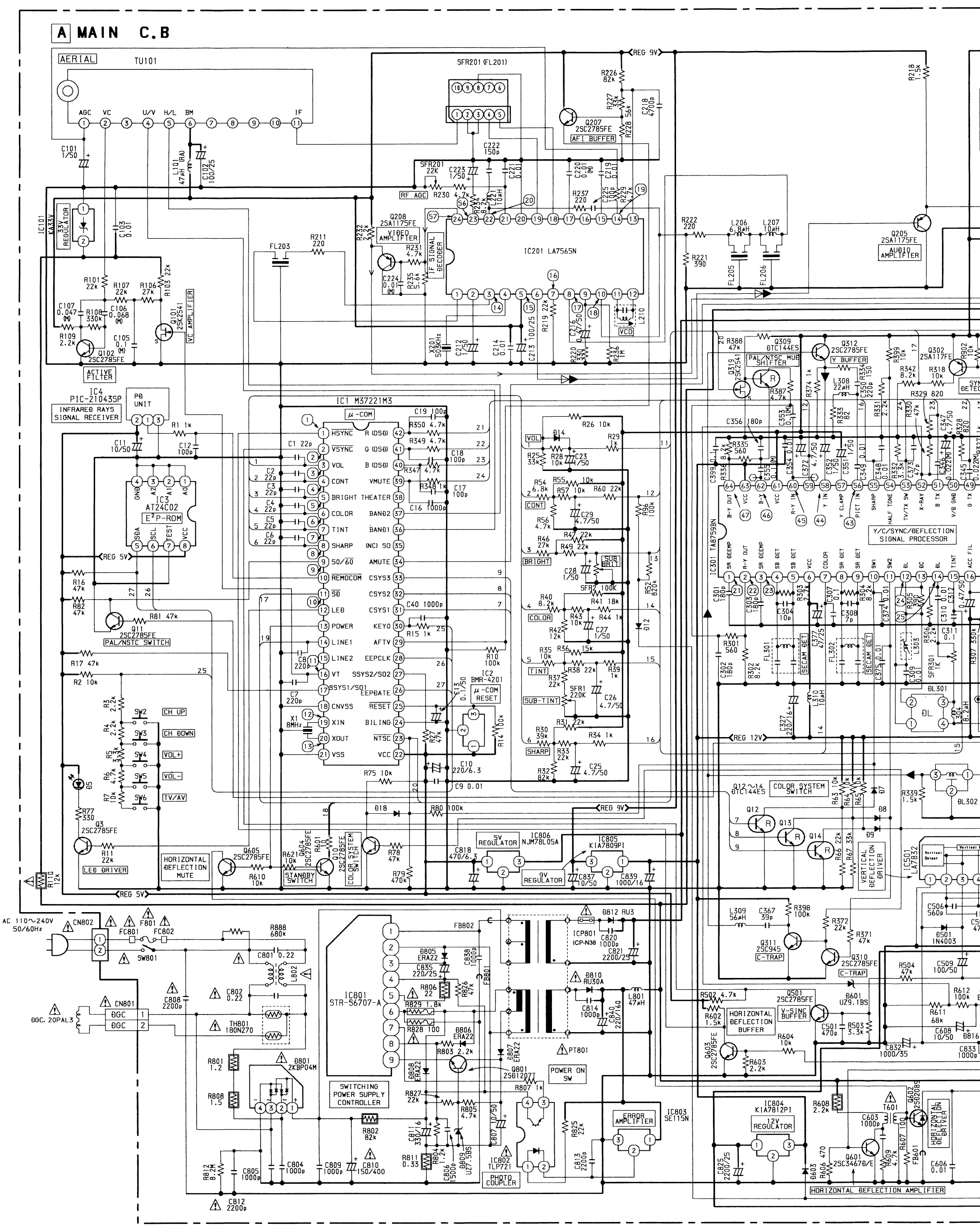
| REF. NO. | PART NO. | KANRI NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 86-LB7-901-017 | | IB,KER E-R-A-P C202/142<KERJ2NP/4NP> |
| 1 | 86-LB7-903-017 | | IB,KER (E-R-A-P) C202/142-M<KERJ2NM/4NM> |
| 2 | 86-LB4-951-010 | | RC UNIT,RC-6VT06 |
| 3 | 86-LB7-641-010 | | ANT ASSY,TV5 SEC.(PAL) |

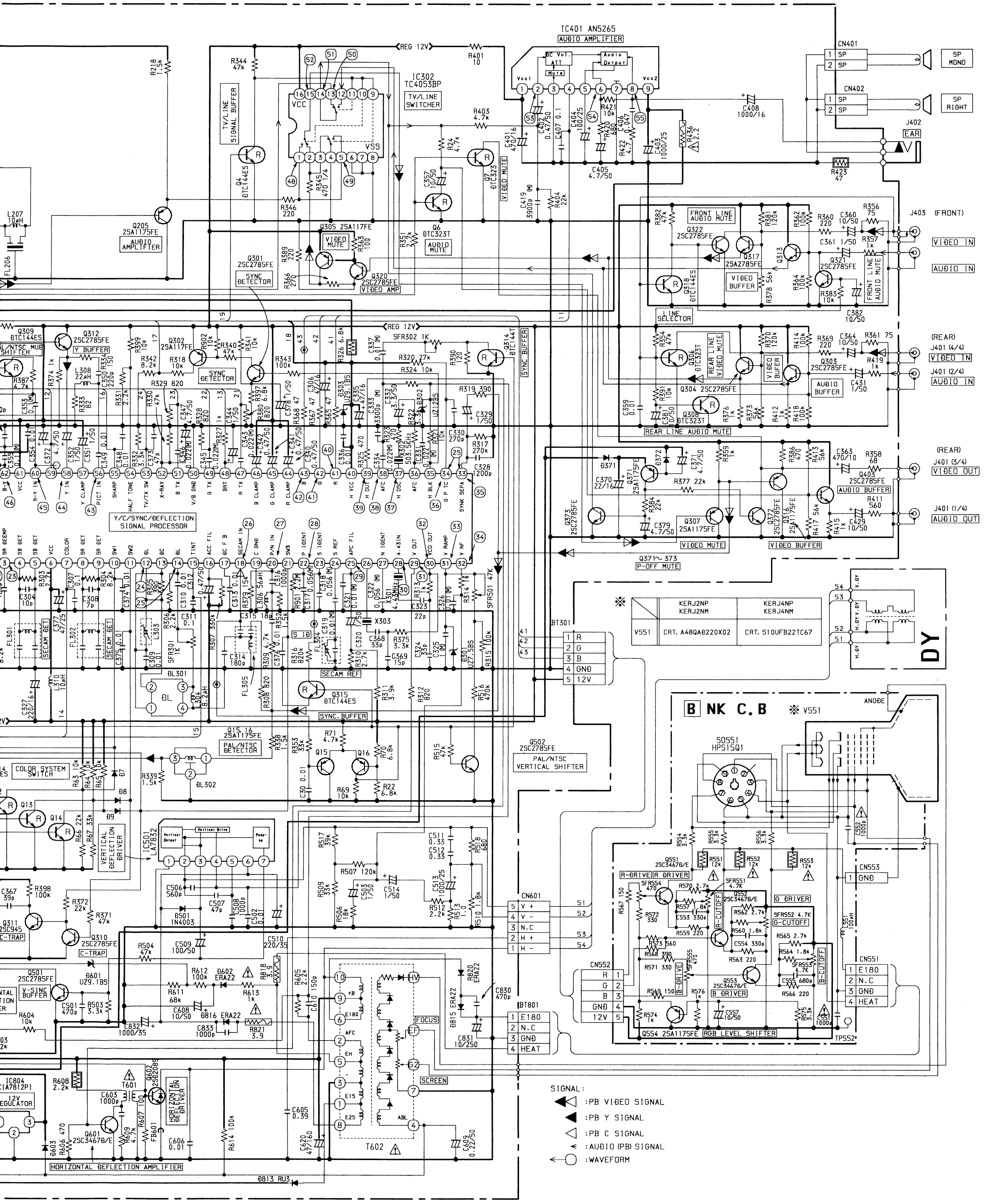
# BLOCK DIAGRAM

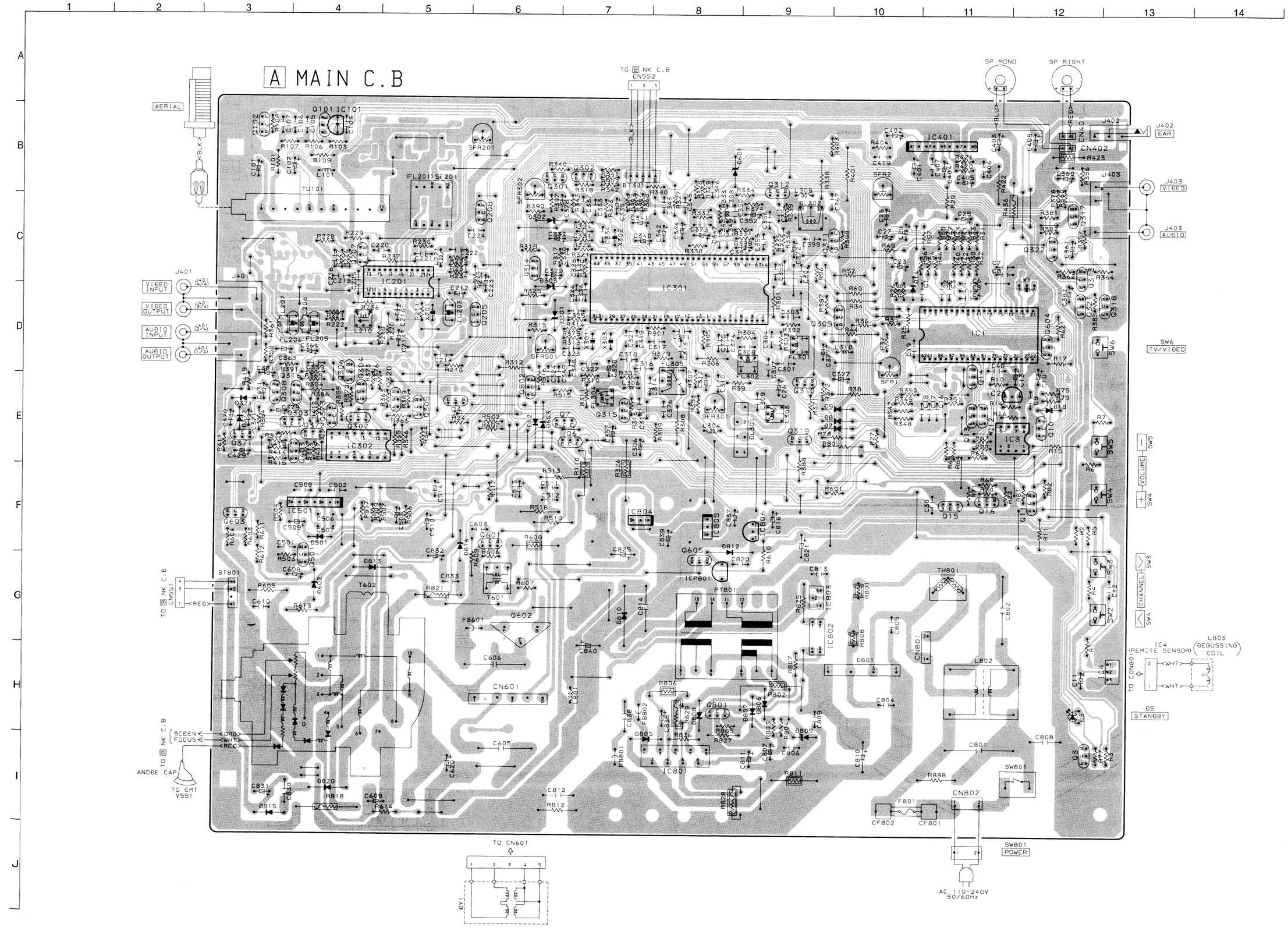



AUDIO BLOCK
Y/C/DEFLECTION BLOCK
J401 (REAR)
Q303
BUFF
AUDIO IN
Q304
BUFF
VIDEO IN
Q316
BUFF
VIDEO OUT
Q403
BUFF
AUDIO OUT
AUDIO AMP
Q205
IC302 TC4053BP
TV/LINE SWITCHER
IC401
AN5265
AUDIO AMPLIFIER
J402
EAR
X301
4.43MHZ
X303
3.58MHZ
IC301
TA8759BN
Y/C/SYNC/DEFLECTION SIGNAL PROCESSOR
VIDEO AMPLIFIER
Q305
Q320
Q307
VIDEO MUTE
Q6
AUDIO MUTE
VIDEO MUTE
Q7
P-OFF MUTE
Q371~ 373
Q4
TV/LINE BUFFER
Y/C SIGNAL PROCESSOR
OSD SW
B OUT
G OUT
R OUT
OSD B
OSD G
OSD R
P/N IN
Y IN
SYNC IN
SP401
SP MONO
SP402
SP RIGHT
VER./HOR DEFLECTION SIGNAL PROCESSOR
X302
503.5KHZ
SYSTEM SW
TV/LINE SW
CSYS1
CSYS2
CSYS3
H VCC
COLOR
TINT
BRT
SHARP
CONT
H. BLK
HOUT
VOUT
AFC
7.15.48.55.59
BNK C.B
Q551
~
Q553
V551
SFR551, 554, 555
CUT OFF
IC501
LA7832
VERTICAL DEFLECTION DRIVER
OUT
IN
Q601
HORIZONTAL DEFLECTION AMPLIFIER
T601
Q602
HORIZONTAL DEFLECTION DRIVER
D820
D815
T602
C831
E180
+B
AFC
EH
E15
E25
HV
FOCUS
SCREEN
ABL
IC805
KIA7809PI
IC804
KIA7812PI
9V
12V
D813
D816
C825
C832
V.DY
H.DY V.DY
H.DY
DY

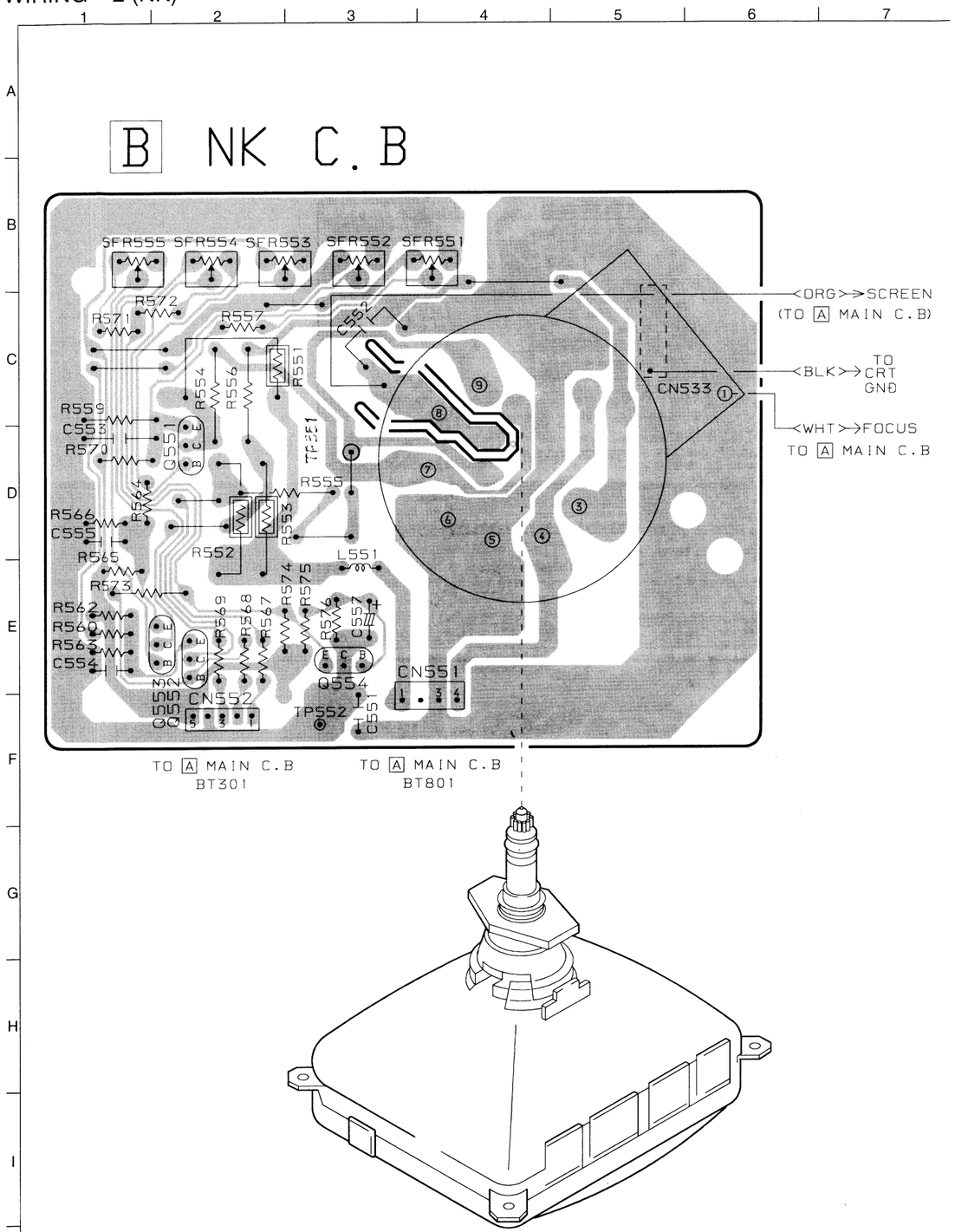
# A MAIN C.B


AERIAL
TU101
AGC VC U/V H/L BM IF
SFR201 (FL201)
REG 9V
Q207 2SC2785FE
AFI BUFFER
IC101 KA33V 33V REGULATOR
RF AGC
Q208 2SA1175FE
VIDEO AMPLIFIER
IF SIGNAL DECODER
IC201 LA7565N
FL203
FL205
FL206
Q205 2SA1175FE
AUDIO AMPLIFIER
Q101 2SK2541
VC AMPLIFIER
Q102 2SC2785FE
ACTIVE FILTER
IC4 PIC-21043SP
INFRARED RAYS SIGNAL RECEIVER
PB UNIT
IC3 AT24C02
E²P-ROM
REG 5V
IC1 M37221M3
μ-COM
HSYNC VSYNC VOL CONT BRIGHT THEATER COLOR TINT SHARP 50/60 REMOCOM SB LED POWER LINE1 LINE2 VT SSYS1/SO1 CNVSS XIN XOUT VSS
R(OSD) G(OSD) B(OSD) VMUTE BAND2 BAND1 (NC) SO AMUTE CSYS3 CSYS2 CSYS1 KEYO AFTV EEPCLK SSYS2/SO2 EEPDATE RESET BILING NTSC VCC
IC2 BMR-4201
μ-COM RESET
X1 8MHz
R11 22k
LED DRIVER
HORIZONTAL DEFLECTION MUTE
Q605 2SC2785FE
STANDBY SWITCH
Q604 2SC2785FE
Q610 2SC2785FE
COLOR SYSTEM SWITCH
5V REGULATOR
IC806 NJM78L05A
9V REGULATOR
IC805 KIA7809PI
CH UP
CH DOWN
VOL+
VOL-
TV/AV
Q3 2SC2785FE
D5
D18
R80 100k
R75 10k
C9 0.01
C10 220/6.3
C40 1000p
R15 1k
R10 100k
C19 100p
R350 4.7k
R349 4.7k
R347 4.7k
R348 1k
C18 100p
C16 1000p
C17 100p
R26 10k
R29 1k
R25 33k
R28 10k
C23 1/50
R54 6.8k
R55 10k
R57 10k
R60 22k
R56 4.7k
C29 4.7/50
R46 27k
R47 22k
R49 22k
C28 1/50
SFR2 100K
R40 8.2k
R41 18k
R43 10k
R44 1k
R42 12k
C27 1/50
R35 10k
R36 15k
R38 22k
R39 1k
R37 22k
SFR1 220K
C26 4.7/50
R31 22k
R30 39k
R34 1k
R33 22k
R32 82k
C25 4.7/50
VOL CONT BRIGHT COLOR TINT SUB-TINT SHARP SUB BRIT
D12
R96 100k
R52 820k
R218 1.5k
R222 220
R221 390
L206 6.8μH
L207 10μH
R237 220
C222 150p
C223 1/50
C221 0.01
C220 0.01 (M)
C219 0.01
C225 100p
R229 4.7k
SFR201 22K
R230 4.7k
R231 8.2k
L201 10μH
R232 2.2k
R235 5.6k
C224 0.01 (M)
R219 22k
C216 47/50
C213 100/25
C214 0.01
C212 1/50
X201 503KHz
R220 330
R236 1M
L210
VCO
FL301
FL302
SECAM DET
SFR301 1K
L303
L310 10μH
DL301
DL
REG 12V
Q309 DTC144ES
PAL/NTSC MUE SHIFTER
Q319 2SK2541
Q312 2SC2785FE
Y BUFFER
L308 22μH
R387 4.7k
R374 1k
R335 560
R336 8.2k
C356 180p
C353 0.1 (M)
C354 0.01
C372 4.7/50
C352 1/50
C351 1/50
C349 0.01
C348 0.01
R332 3.3k
C373 47p
R331 2.2k
R330 47k
R329 820
C347 4.7/50
R328 820
C345 0.022(M)
C346 0.022(M)
R339 10k
R342 8.2k
R318 10k
Q302 2SA1179FE
R902 10k
C350 220p
R334 150
R333 82
C399 0.1
C355 0.1 (M)
IC301 TA8759BN
Y/C/SYNC/DEFLECTION SIGNAL PROCESSOR
B-Y OUT VCC B-Y VCC R-Y IN Y IN Y CLAMP PICT IN SHARP HALF TONE TV/TX SW X-RAY B TX V/D GND G TX
SR DEEMP A-Y OUT SR DEEMP SB DET SB DET VCC COLOR SR DET SR DET SW1 SW2 DL DC DL TINT ACC FIL
C301 180p
C303 180p
C304 10p
C307 0.1
C308 7p
C374 0.01
C312 0.47/50
C310 0.01
C311 0.1
R303 2.7k
R304 8.2k
R305 330
R306 2.2k
R307 330k
C377 47/25
C375 0.01
C309 0.01
R301 560
C302 180p
R302 8.2k
R339 1.5k
D1 D2 D3 D4 D5 D6 D7 D8 D9
Q12~14 DTC144ES
COLOR SYSTEM SWITCH
Q12 Q13 Q14
R63 10k R64 10k R65 10k
R66 22k R67 33k
VERTICAL DEFLECTION DRIVER
IC501 LA7832
R398 100k
R372 22k
R371 47k
Q311 2SC945
C-TRAP
Q310 2SC2785FE
C-TRAP
R504 47k
C509 100/50
D501 1N4003
L309 56μH
C367 39p
R612 100k
R611 68k
C608 10/50
D816
C832 1000/35
C833 1000p
Q501 2SC2785FE
V-SINC BUFFER
D601 UZ9.1BS
R502 4.7k
R602 1.5k
HORIZONTAL DEFLECTION BUFFER
Q603 2SC2785FE
R604 10k
R603 2.2k
R501 4.7k
R503 3.3k
C501 470p
AC 110~240V 50/60Hz
CN802
F801
FC801
FC802
SW801
CN801
DGC. 20PAL3
DGC
DGC
R888 680k
C801 0.22
L802
C802 0.22
C808 2200p
TH801 180N270
D801 2KBP04M
R801 1.2
R808 1.5
C812 2200p
IC801 STR-S6707-A
SWITCHING POWER SUPPLY CONTROLLER
FB802
FB801
D805 ERA22
C835 220/25
C838 1000p
R806 22
R826 47k
R829 1.8k
R828 100
D806 ERA22
R803 2.2k
D808 ERA22
D807 ERA22
PT801
ICP801 ICP-N38
D812 RU3
C820 1000p
C821 2200/25
D810 RU30A
C814 1000p
C840 220/160
L801 47μH
Q801 2SD1207T
POWER ON SW
R807 1k
R827 22k
R805 4.7k
C807 10/50
R825 22k
C813 2200p
IC803 SE115N
ERROR AMPLIFIER
IC802 TLP721
PHOTO COUPLER
R802 82k
C811 330/16
R811 0.33
R804 1.2k
C806 1500p
D809 UZ7.5B5
C809 1000p
C810 150/400
C805 1000p
C804 1000p
R812 8.2M
IC804 KIA7812PI
12V REGULATOR
C825 2200/25
R608 2.2k
T601
Q602 2SD2089
HORIZONTAL DEFLECTION DRIVER
C603 1000p
Q601 2SC3467D/E
R606 470
R609 4.7k
R607 100
FB601
D603
C606 0.01
HORIZONTAL DEFLECTION AMPLIFIER


IC401 AN5265
AUDIO AMPLIFIER
IC302
TC4053BP
TV/LINE SWITCHER
TV/LINE SIGNAL BUFFER
REG 12V
CN401
CN402
SP MONO
SP RIGHT
J402
EAR
J403 (FRONT)
VIDEO IN
AUDIO IN
(REAR)
J401 (4/4)
J401 (2/4)
J401 (3/4)
VIDEO OUT
J401 (1/4)
AUDIO OUT
FRONT LINE AUDIO MUTE
REAR LINE VIDEO MUTE
REAR LINE AUDIO MUTE
LINE SELECTOR
VIDEO BUFFER
AUDIO BUFFER
VIDEO MUTE
AUDIO MUTE
Q205 2SA1175FE
AUDIO AMPLIFIER
Q305 2SA117FE
VIDEO MUTE
Q320 2SC2785FE
VIDEO AMP
Q301 2SC2785FE
SYNC DETECTOR
Q6 DTC323T
Q7 DTC323
Q4 DTC144ES
Q322 2SC2785FE
Q317 2SA2785FE
Q318 DTC144ES
Q321 2SC2785FE
Q306 DTC323T
Q303 2SC2785FE
Q304 2SC2785FE
Q308 DTC323T
Q309 DTC144ES
Q312 2SC2785FE
Y BUFFER
Q302 2SA117FE
SYNC DETECTOR
Q314 DTC144T
SYNC BUFFER
SFR302 1K
Q371 2SA1175FE
Q372 2SC2785FE
Q373 2SC2785FE
Q307 2SA1175FE
Q316 2SA1175FE
Q403 2SC2785FE
AUDIO BUFFER
VIDEO MUTE
VIDEO BUFFER
Q373 P-OFF MUTE
Y/C/SYNC/DEFLECTION SIGNAL PROCESSOR
SECAM DET
SECAM REF
SYNC. BUFFER
Q315 DTC144ES
Q15, 16 2SA1175FE
PAL/NTSC DETECTOR
Q502 2SC2785FE
PAL/NTSC VERTICAL SHIFTER
COLOR SYSTEM SWITCH
DL301
DL302
IC501 LA7832
VERTICAL DEFLECTION DRIVER
HORIZONTAL DEFLECTION DRIVER
HORIZONTAL DEFLECTION AMPLIFIER
Q602 2SB1089
Q601 2SC3467B/E
T601
T602
FOCUS
SCREEN
ABL
BT301
BT801
CN601
CN552
CN553
CN551
TP552
Q551 2SC3467B/E
R-DRIVE
G DRIVER
B DRIVER
Q552 2SC3467B/E
Q553 2SC3467B/E
Q554 2SA1175FE
RGB LEVEL SHIFTER
R-CUTOFF
G-CUTOFF
B-CUTOFF
SFR551 4.7K
SFR552 4.7K
SFR553 4.7K
SFR554 470
SFR555 470
※
KERJ2NP KERJ2NM
KERJ4NP KERJ4NM
V551
CRT. A48QAB220X02
CRT. S10UFB22TC67
DY
BNK C.B
※ V551
ANODE
S0551 HPS15Q1
SIGNAL:
:PB VIDEO SIGNAL
:PB Y SIGNAL
:PB C SIGNAL
:AUDIO (PB) SIGNAL
:WAVEFORM


A MAIN C.B
TO B NK C.B CN552
SP MONO
SP RIGHT
AERIAL
J402 EAR
J403 VIDEO
J403 AUDIO
J401
VIDEO INPUT
VIDEO OUTPUT
AUDIO INPUT
AUDIO OUTPUT
IC201
IC301
IC401
IC1
IC501
IC302
IC804
IC805
IC801
IC802
IC803
IC2
IC3
IC4 (REMOTE SENSOR)
SW6 TV/VIDEO
SW5 VOLUME
SW4 CHANNEL
SW3
SW2
SW1
D5 STANDBY
L803 (DEGUSSING COIL)
TO CDN801S
TO B NK C.B CN551
BT801
SCEEN
FOCUS
ANODE CAP
TO CRT V551
TO CN601
DY1
SW801 POWER
AC 110-240V 50/60Hz
CN802
TH801
ICP801
PT801
T601
T602
Q602
CN601

## WIRING – 2 (NK)

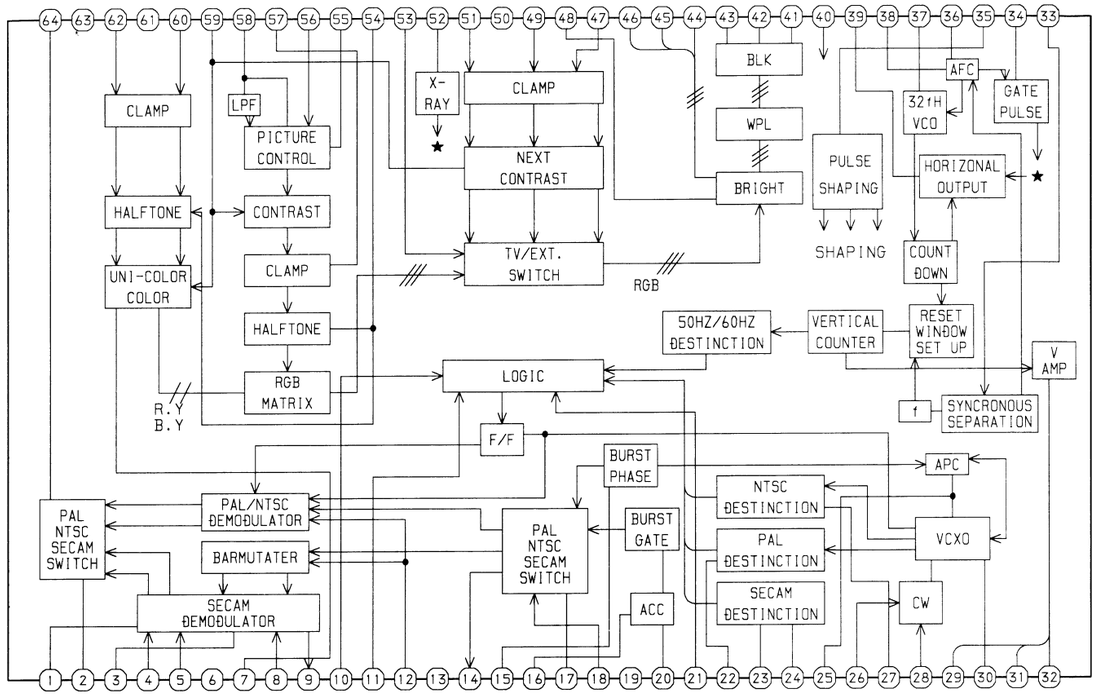




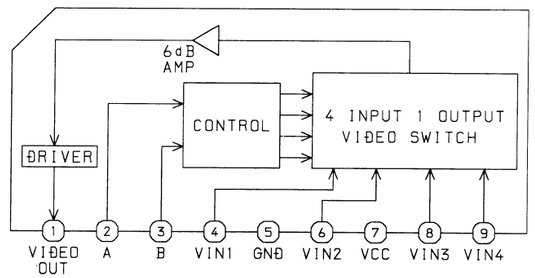



## IC BLOCK DIAGRAM

IC, TA8759BN

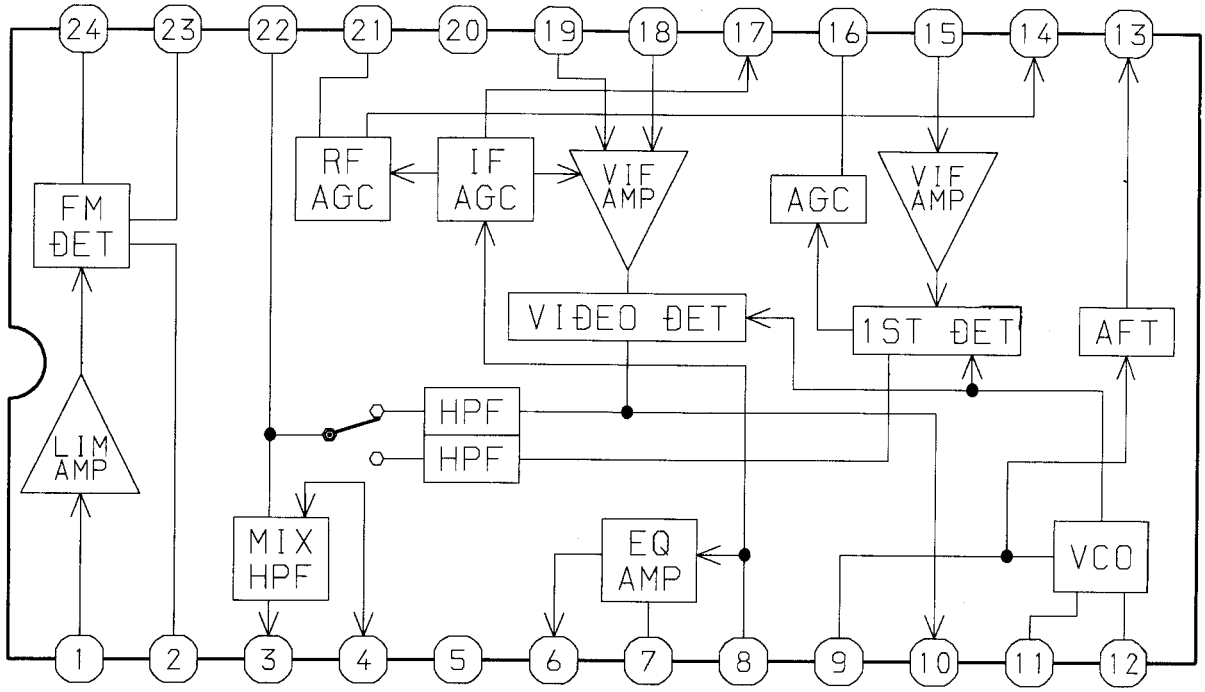



IC, LA7956

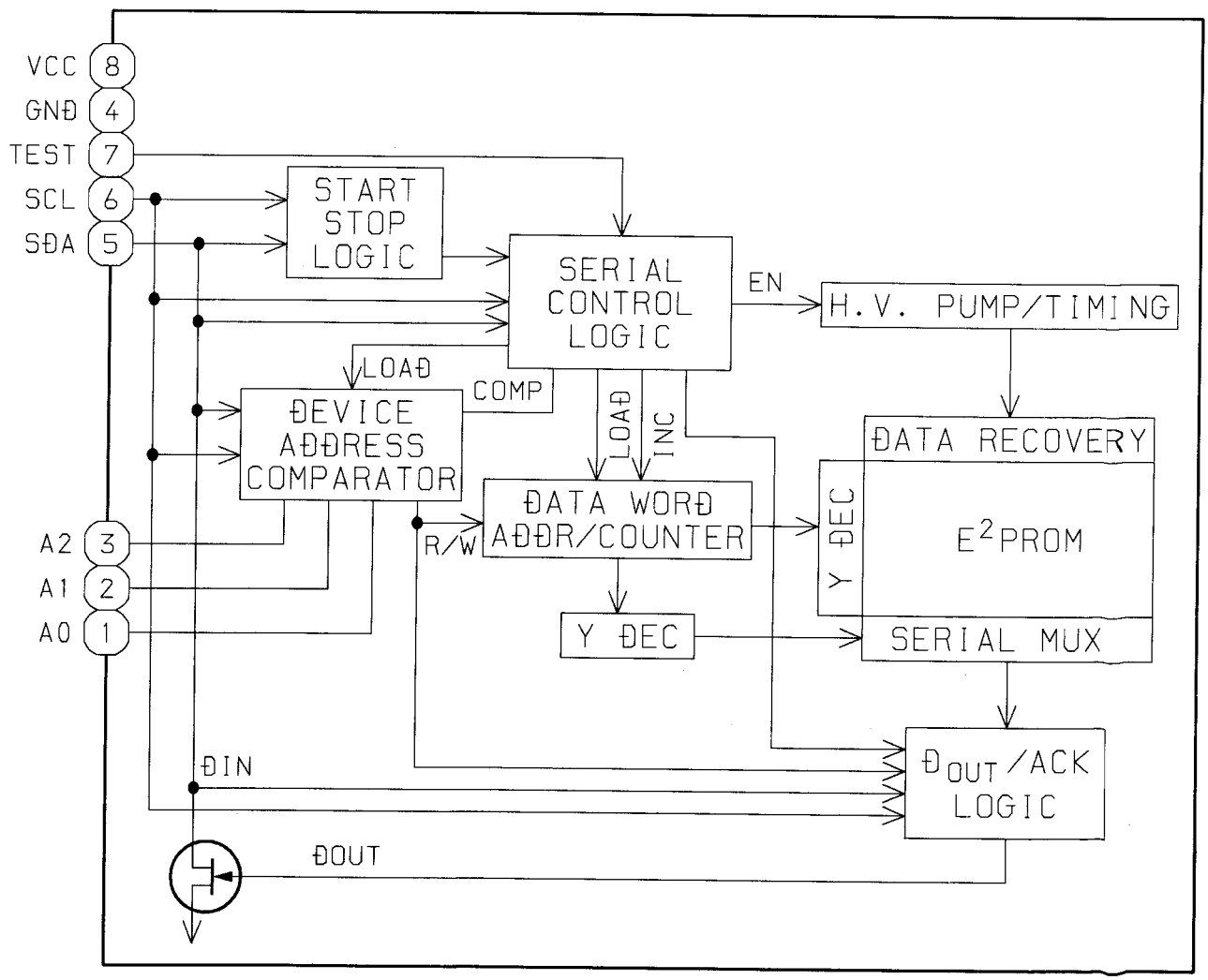



| A | B | VIN1 | VIN2 | VIN3 | VIN4 |
|---|---|---|---|---|---|
| H | H | ON | OFF | OFF | OFF |
| L | H | OFF | ON | OFF | OFF |
| H | L | OFF | OFF | ON | OFF |
| L | L | OFF | OFF | OFF | ON |

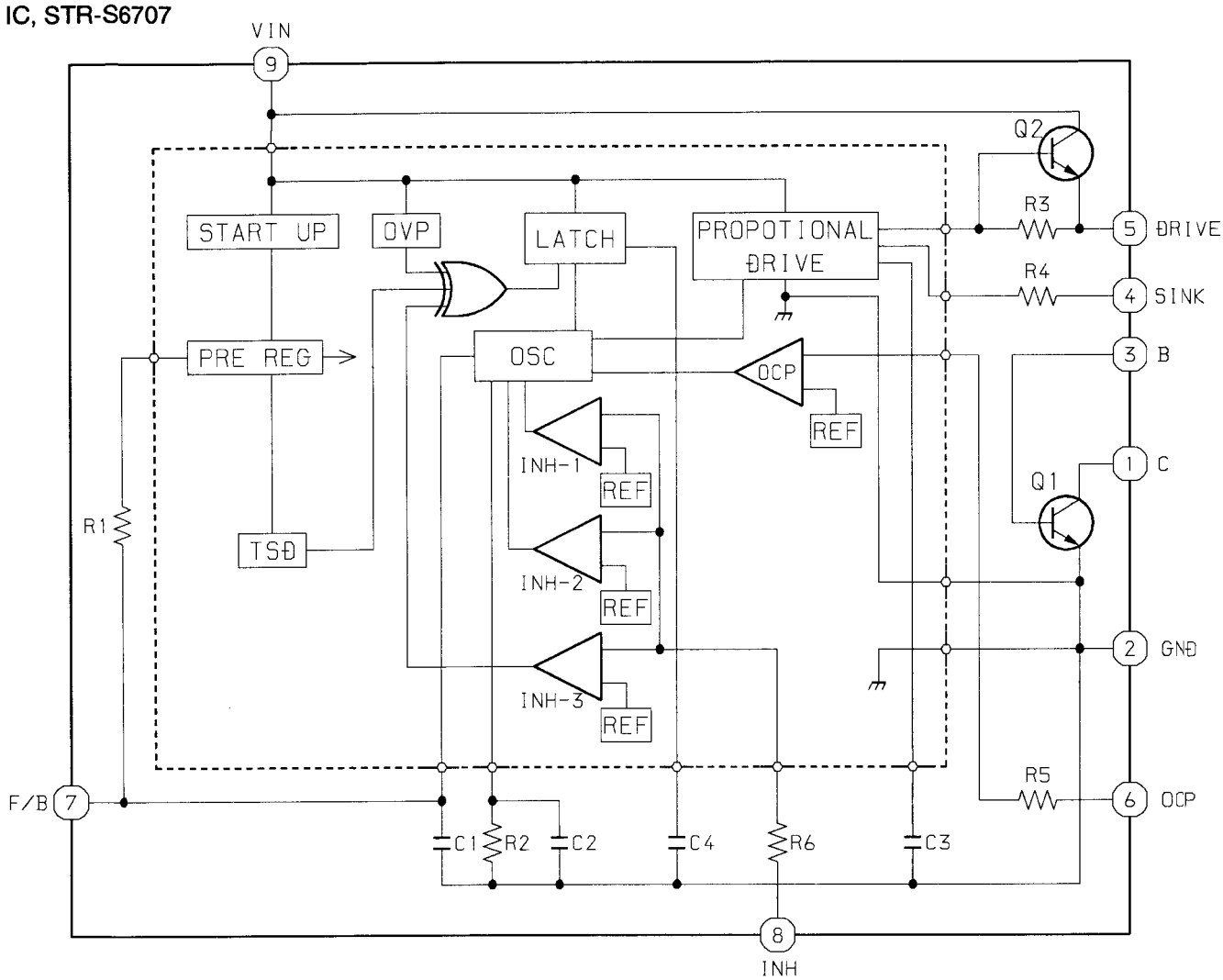
IC, LA756N



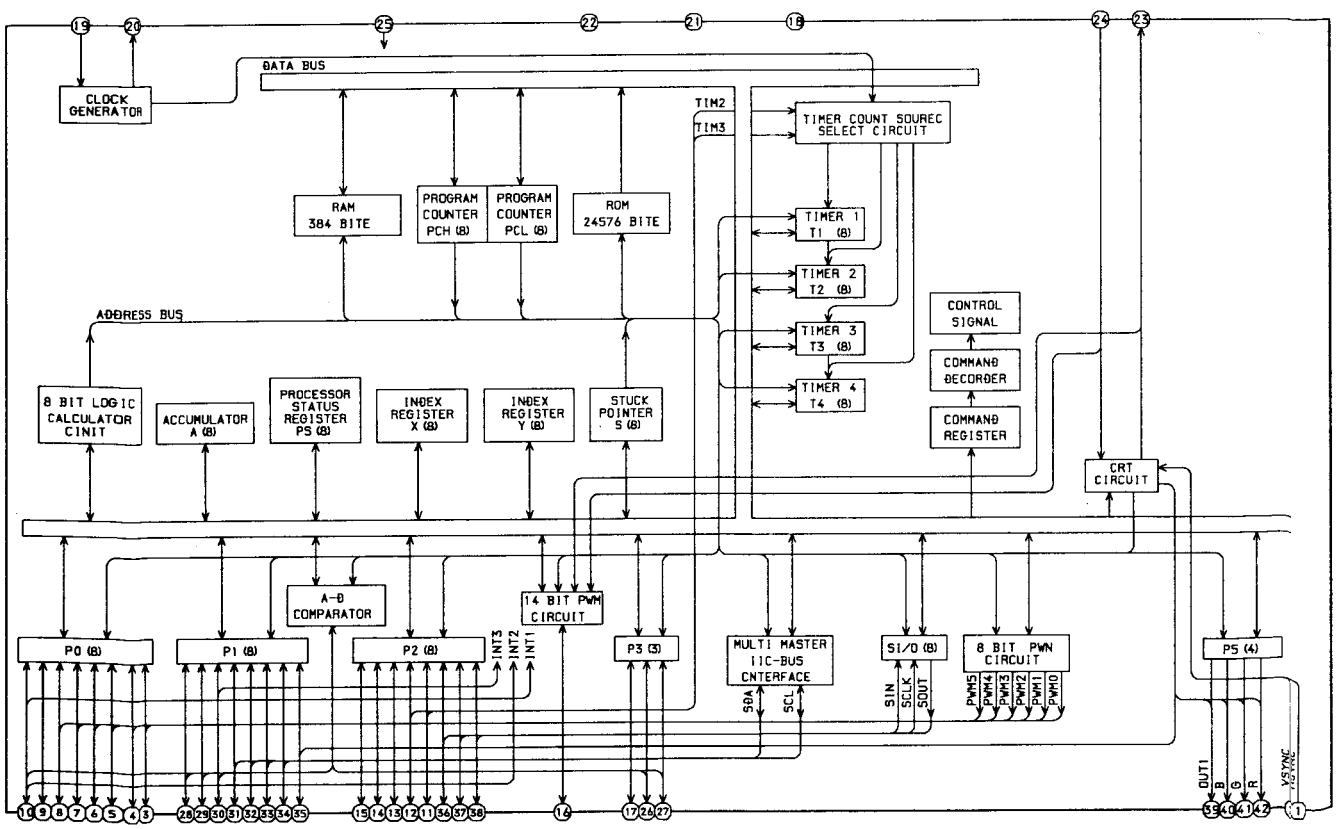

IC, AT24C02



## IC, STR-S6707

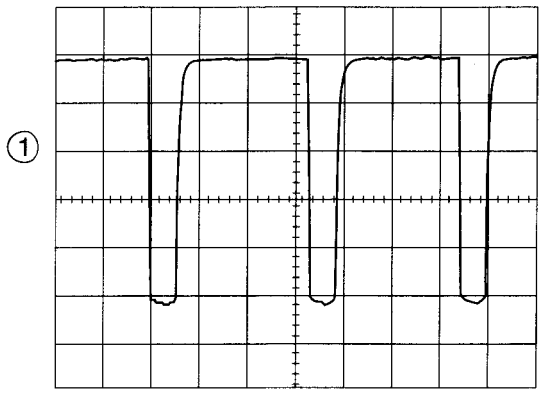



## IC, M37221M3

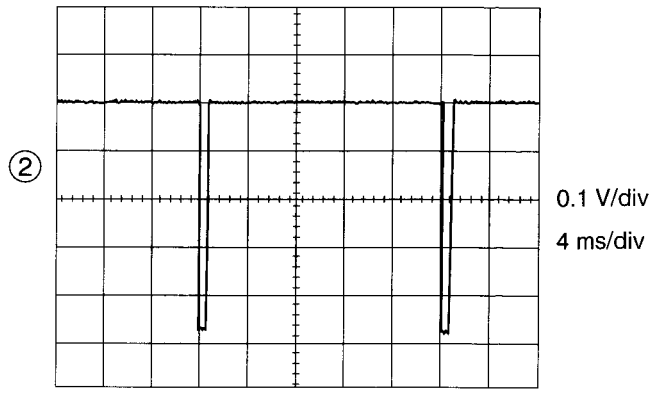


## WAVEFORM

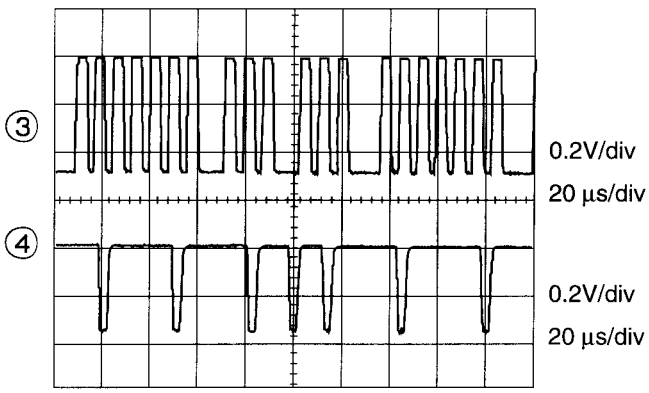
① IC1 Pin ①



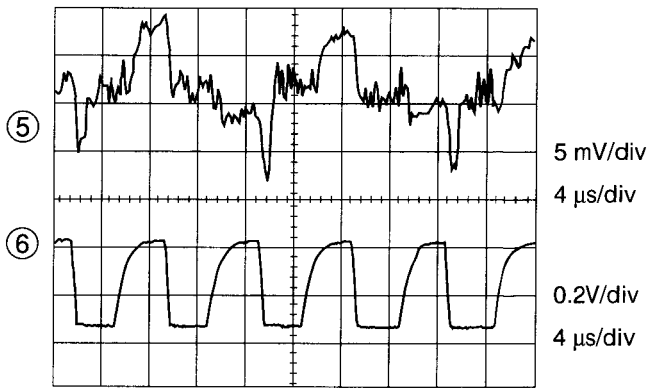

② IC1 Pin ②



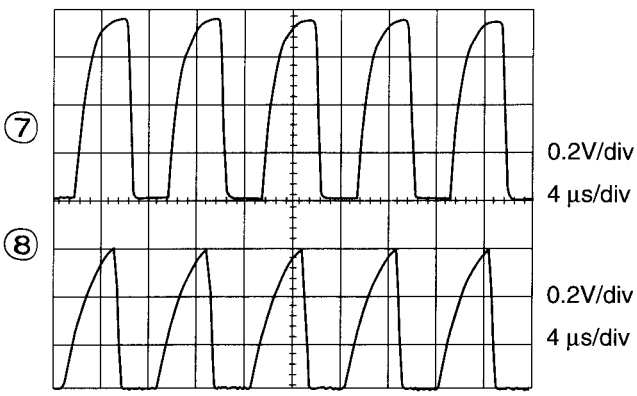

③ IC1 Pin ③
④ IC1 Pin ④



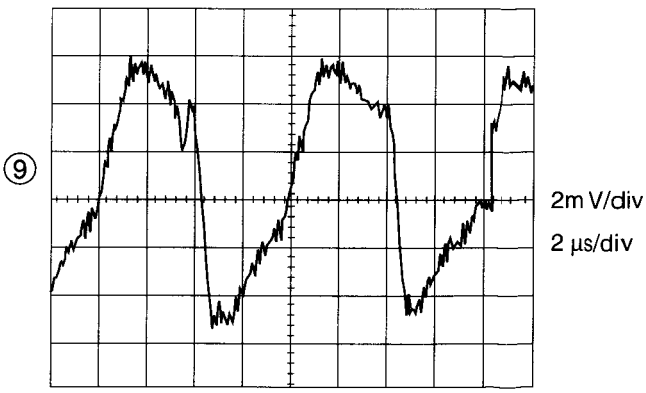

⑤ IC1 Pin ⑤
⑥ IC1 Pin ⑥



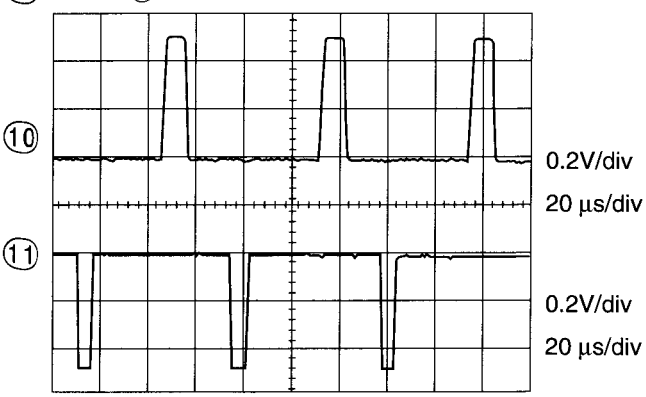

⑦ IC1 Pin ⑦
⑧ IC1 Pin ⑧



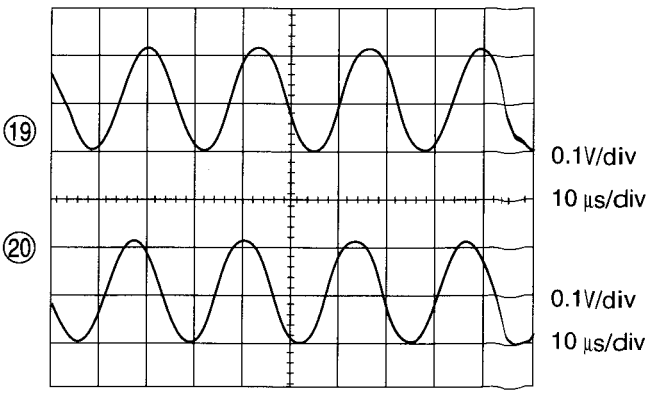

⑨ IC1 Pin ⑨



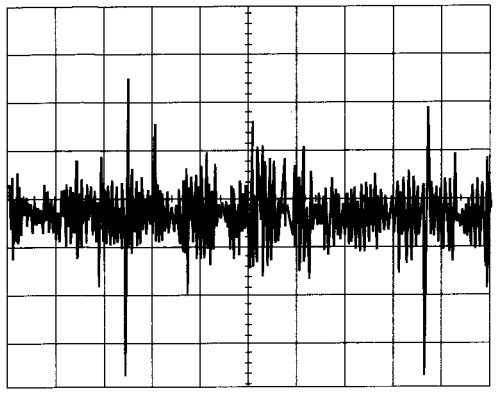

⑩ IC1 Pin ⑪
⑪ IC1 Pin ⑯




⑫ IC1 Pin ⑲
⑬ IC1 Pin ⑳

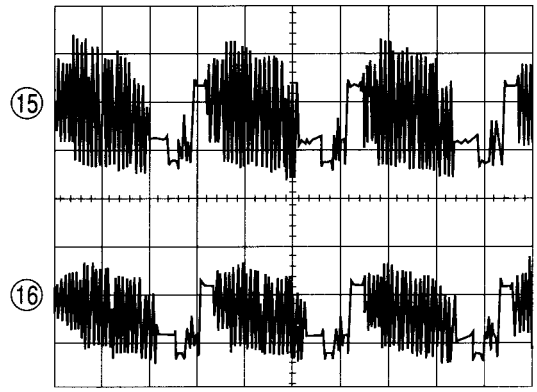


⑭ IC201 Pin ③



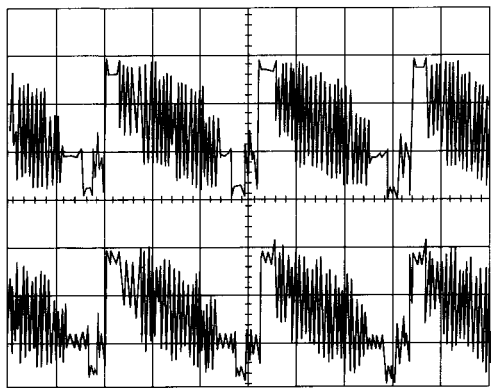
20 mV/div
10 µs/div

⑮ IC201 Pin ⑥
⑯ IC201 Pin ⑦



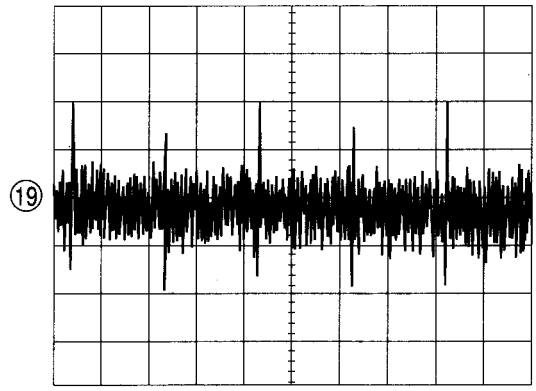
0.1 V/div
20 µs/div
0.1 V/div
20 µs/div

⑰ IC201 Pin ⑧
⑱ IC201 Pin ⑩



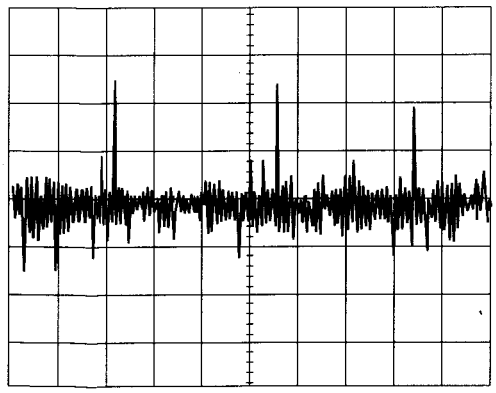
50 mV/div
20 µs/div
50 mV/div
20 µs/div

⑲ IC201 Pin ⑭



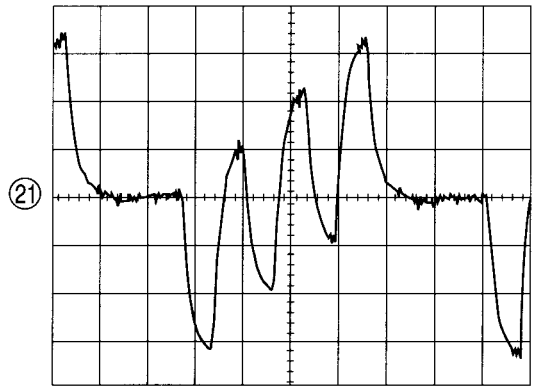
20 mV/div
10 ms/div

⑳ IC201 Pin ㉒



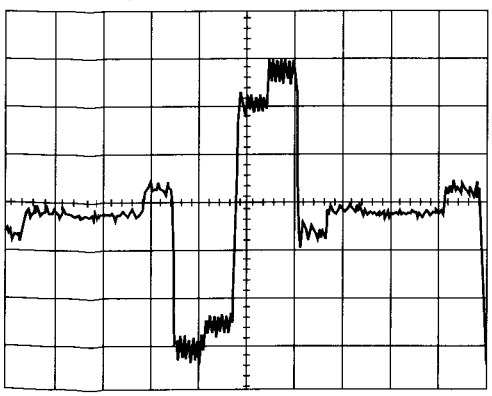
10 mV/div
20 µs/div

㉑ IC301 Pin ①



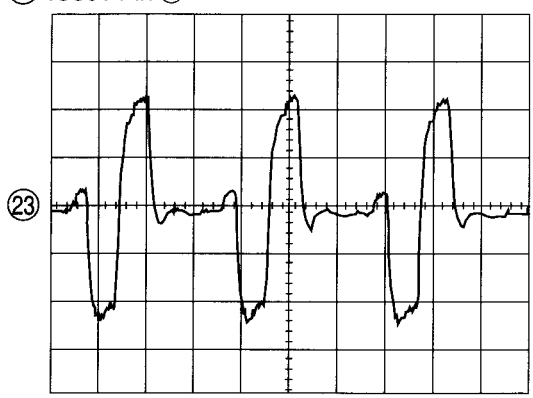
10 mV/div
10 µs/div

㉒ IC301 Pin ②



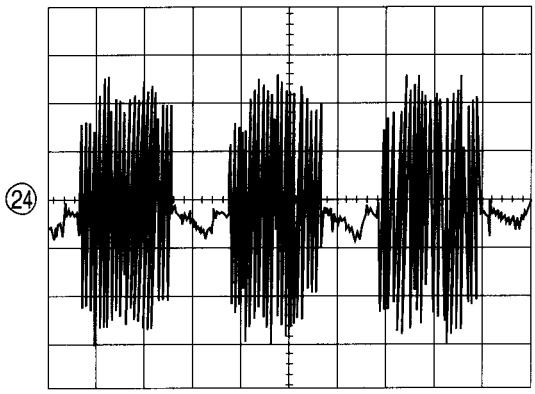
20 mV/div
10 µs/div

㉓ IC301 Pin ③

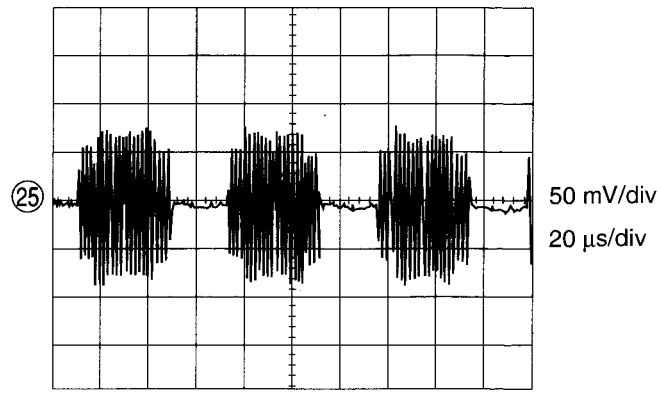


20 mV/div
20 µs/div

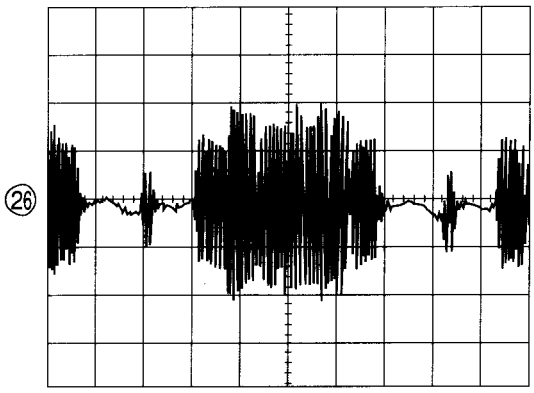
㉔ IC301 Pin ⑫



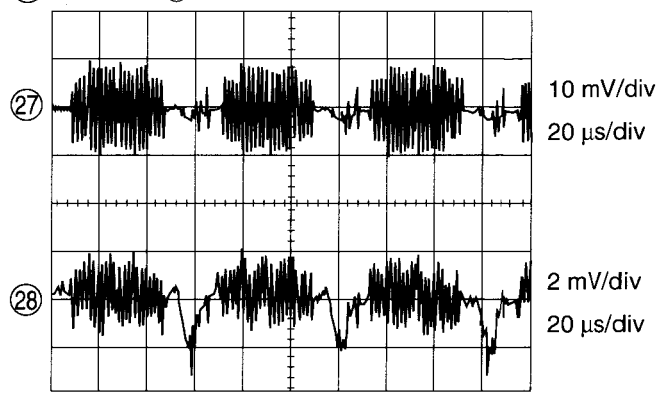

㉕ IC301 Pin ⑭



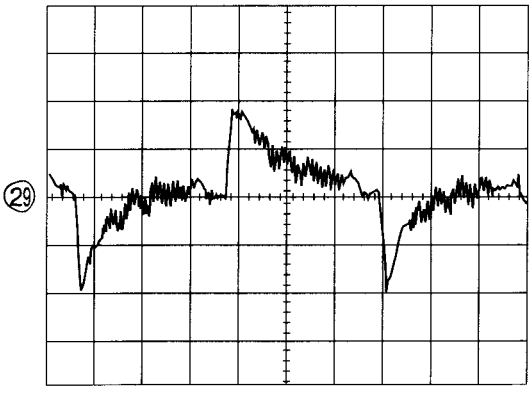

㉖ IC301 Pin ⑱



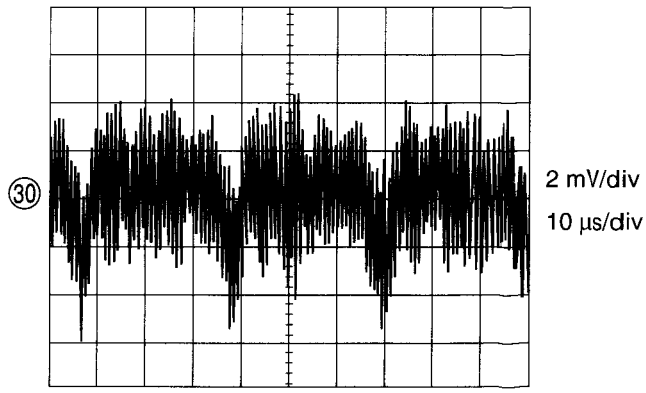

㉗ IC301 Pin ⑳
㉘ IC301 Pin ㉒



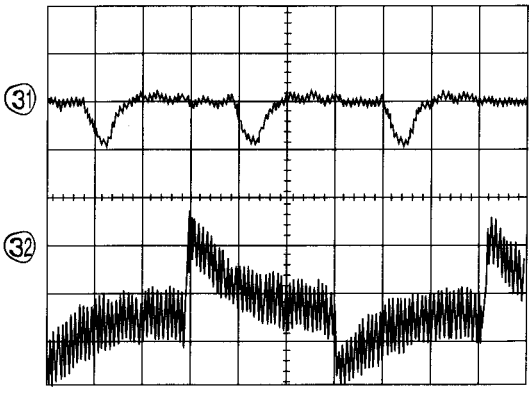

㉙ IC301 Pin ㉕



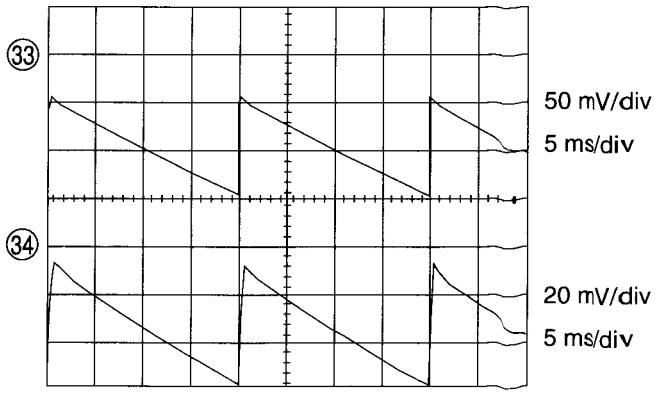

㉚ IC301 Pin ㉘



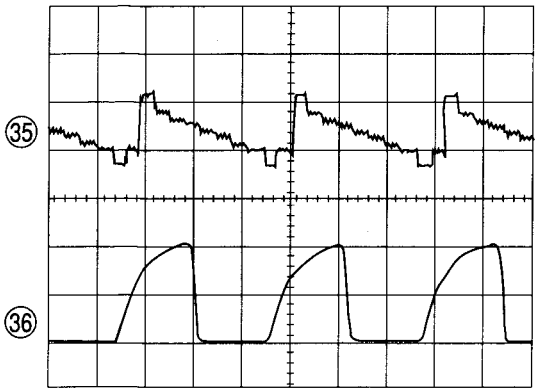

㉛ IC301 Pin ㉙
㉜ IC301 Pin ㉚




㉝ IC301 Pin ㉛
㉞ IC301 Pin ㉜

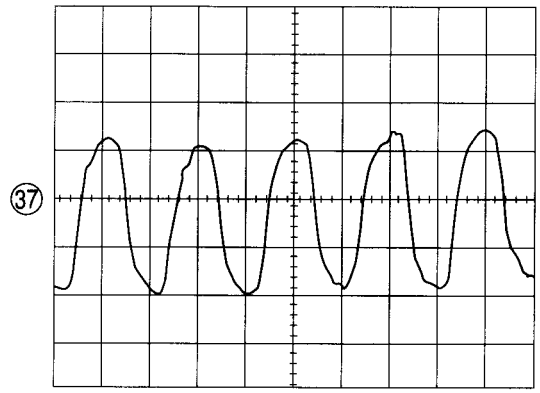


㉟ IC301 Pin ㉝
㊱ IC301 Pin ㉞



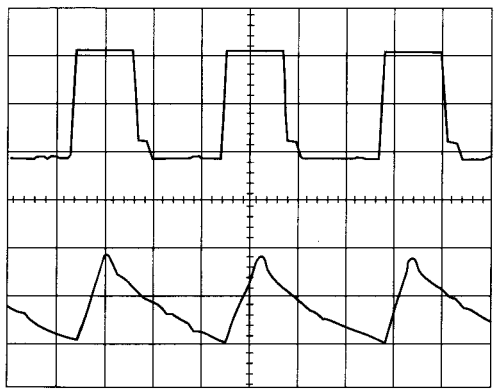

0.1 V/div
20 µs/div
0.2 V/div
20 µs/div

㊲ IC301 Pin ㊲



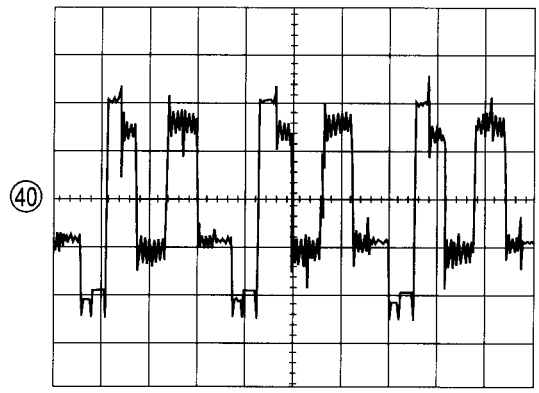

5 mV/div
1 µs/div

㊳ IC301 Pin ㊴
㊴ IC301 Pin ㊳



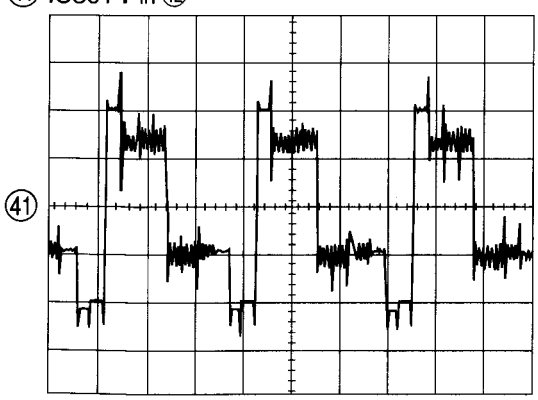

0.2 mV/div
20 µs/div
50 mV/div
20 µs/div

㊵ IC301 Pin ㊶



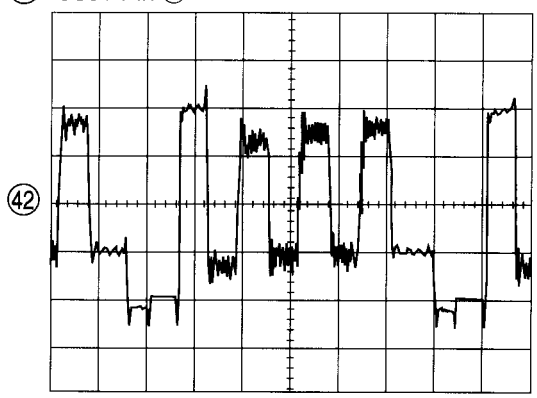

0.1 V/div
20 µs/div

㊶ IC301 Pin ㊷



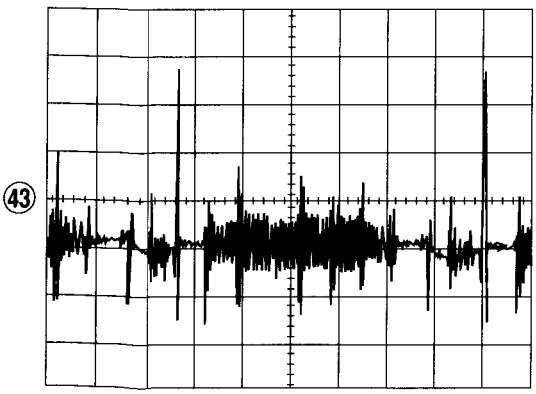

0.1 V/div
20 µs/div

㊷ IC301 Pin ㊸



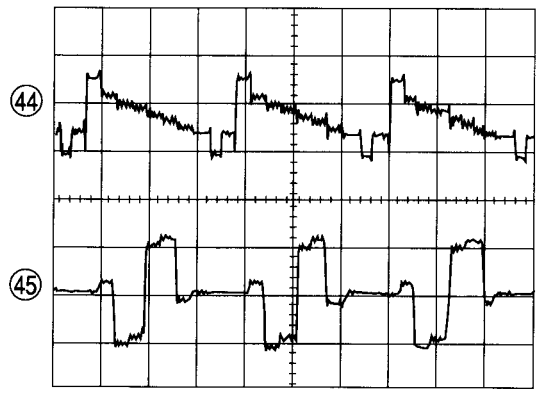

0.1 V/div
10 µs/div

㊸ IC301 Pin ㊺⑥



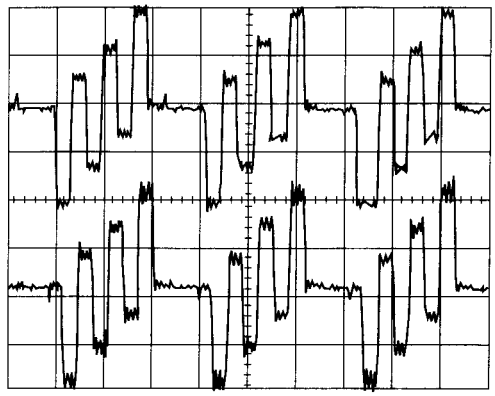

5 mV/div
10 µs/div

㊹ IC301 Pin ㊽
㊺ IC301 Pin ㊿

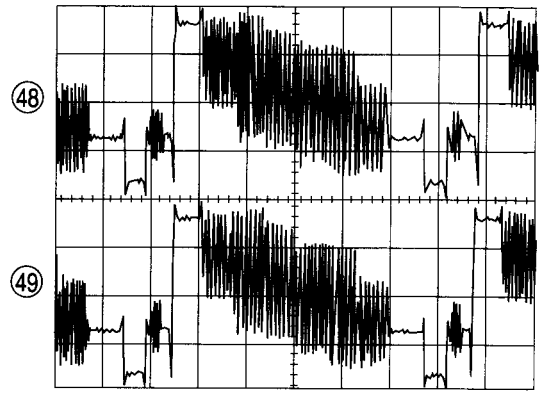



50 mV/div
20 µs/div
50 mV/div
20 µs/div

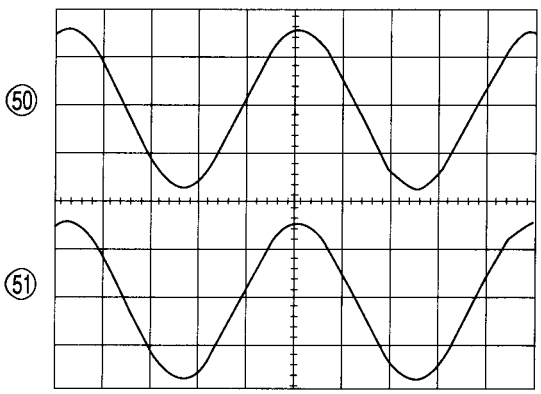
㊻ IC301 Pin ㊷
㊼ IC301 Pin ㊹



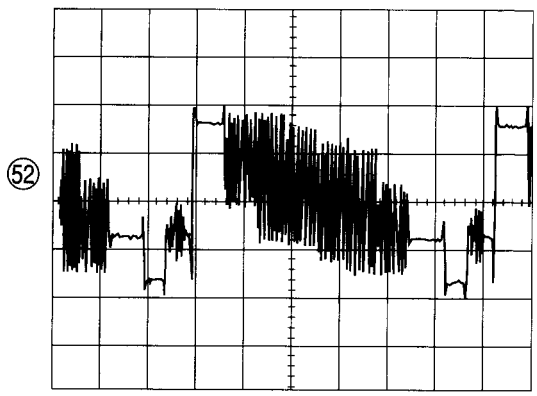

㊽ IC302 Pin ①
㊾ IC302 Pin ⑤



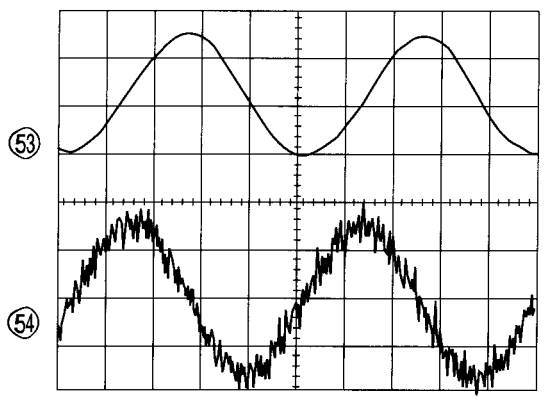

㊿ IC302 Pin ⑬
(51) IC302 Pin ⑭



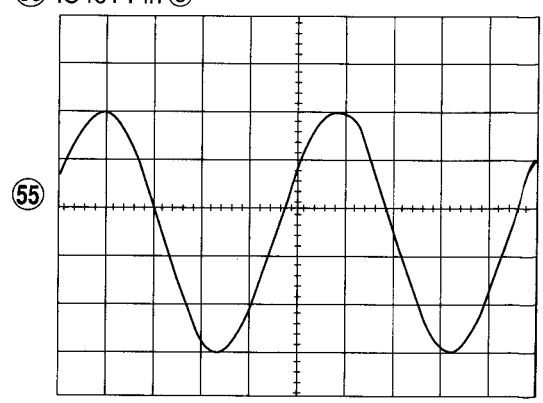

(52) IC302 Pin ⑮



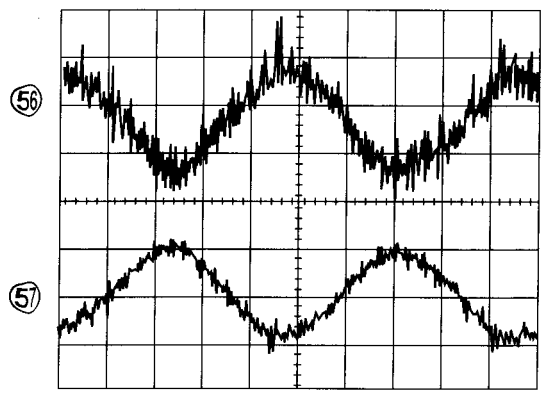

(53) IC401 Pin ②
(54) IC401 Pin ⑥




(55) IC401 Pin ⑧




(56) IC201 Pin ㉓
(57) IC201 Pin ㉔



# IC DESCRIPTION

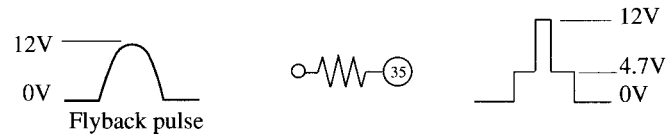
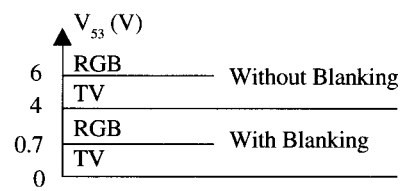
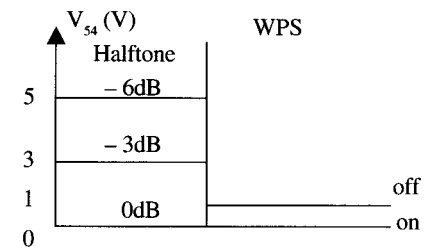
IC, M37221M3

<table>
<tr><th>Pin No.</th><th>Pin Name</th><th>I/O</th><th>Description</th></tr>
<tr><td>1</td><td>$\overline{\text{HSYNC}}$</td><td>I</td><td>OSD horizontal synchronised signal input terminal. "L"= active.</td></tr>
<tr><td>2</td><td>$\overline{\text{VSYNC}}$</td><td>I</td><td>OSD vertical synchronised signal input terminal. "L"=active.</td></tr>
<tr><td>3</td><td>VOL</td><td>O</td><td>Volume control output. (Volume PWM 8 bit.)</td></tr>
<tr><td>4</td><td>CONT</td><td>O</td><td>Contrast control output. (Contrast PWM 8 bit.)</td></tr>
<tr><td>5</td><td>BRIGHT</td><td>O</td><td>Brightness control output. (Brightness PWM 8 bit.)</td></tr>
<tr><td>6</td><td>COLOR</td><td>O</td><td>Color control output. (Color PWM 8 bit.)</td></tr>
<tr><td>7</td><td>TINT</td><td>O</td><td>Tint control output. (Tint PWM 8 bit.)</td></tr>
<tr><td>8</td><td>SHARP</td><td>O</td><td>Sharpness control output. (Sharpness PWM 8 bit.)</td></tr>
<tr><td>9</td><td>50/$\overline{60}$</td><td>O</td><td>Vertical scanning frequency input.</td></tr>
<tr><td>10</td><td>$\overline{\text{REMOCON}}$</td><td>I</td><td>Remote control signal is led to this pin.</td></tr>
<tr><td>11</td><td>$\overline{\text{SD}}$</td><td>I</td><td>Horizontal sync. detected input. The level of this pin will be sampled by µp to determine whether there is picture signal detected.</td></tr>
<tr><td>12</td><td>LED</td><td>O</td><td>During standby mode, "H" level is inserted to switch on standby LED.</td></tr>
<tr><td>13</td><td>POWER</td><td>O</td><td>During standby mode, "H" level is inserted to switch off horizontal deflection and high voltage.</td></tr>
<tr><td>14/15</td><td>LINE1/LINE2</td><td>O</td><td>Tuner/Line1/Line2 selection.
<table>
<tr><th>Pin 14</th><th>Pin 15</th><th>Input selection</th></tr>
<tr><td>H</td><td>L</td><td>Line 1</td></tr>
<tr><td>L</td><td>H</td><td>Line 2</td></tr>
<tr><td>L</td><td>L</td><td>Tuner</td></tr>
</table></td></tr>
<tr><td>16</td><td>VT</td><td>O</td><td>14 bits PWM output used to provide tuning voltage to tuner. During tuning, duty cycle of PWM will change.</td></tr>
<tr><td>17</td><td>SSYS1/SO1</td><td>O</td><td>Sound system selection. (Not used.)</td></tr>
<tr><td>18</td><td>CNVSS</td><td>–</td><td>Connected to ground.</td></tr>
<tr><td>19</td><td>XINT</td><td>I</td><td>8 MHz clock input.</td></tr>
<tr><td>20</td><td>XOUT</td><td>O</td><td>8 MHz clock output.</td></tr>
<tr><td>21</td><td>VSS</td><td>–</td><td>Connected to ground.</td></tr>
<tr><td>22</td><td>VCC</td><td>–</td><td>5 V supply.</td></tr>
<tr><td>23</td><td>NSTC</td><td>I</td><td>NTSC signal detection input.<br>"L" level when NTSC playback. Used by µp to decide whether tint can or cannot be adjusted.</td></tr>
<tr><td>24</td><td>BILING</td><td>I</td><td>Not used.</td></tr>
<tr><td>25</td><td>$\overline{\text{RESET}}$</td><td>I</td><td>Used to reset the µp when power up.</td></tr>
<tr><td>26</td><td>EEPDATA</td><td>I/O</td><td>Data bus between $E^2$PROM and µp.</td></tr>
<tr><td>27</td><td>SSYS2/SO2</td><td>O</td><td>Sound system selection.(Not used.)</td></tr>
<tr><td>28</td><td>EEPCLK</td><td>O</td><td>Synchronizing clock between µp and $E^2$PROM provided by µp through this pin.</td></tr>
<tr><td>29</td><td>AFTV</td><td>I</td><td>AFT voltage from IC201 is received by µp during channel tuning.</td></tr>
<tr><td>30</td><td>KEY0</td><td>I</td><td>Input key is detected by monitor.</td></tr>
</table>

<table>
<tr><th>Pin No.</th><th>Pin Name</th><th>I/O</th><th>Description</th></tr>
<tr><td>31,32,33</td><td>CSYS1/CSYS2/CSYS3</td><td>O</td><td>Color system setting.
<table>
<tr><td></td><td>AUTO</td><td>PAL</td><td>SECAM</td><td>NTSC 3.58</td><td>NTSC 4.43</td></tr>
<tr><td>Pin 31</td><td>H</td><td>L</td><td>L</td><td>H</td><td>H</td></tr>
<tr><td>Pin 32</td><td>H</td><td>L</td><td>H</td><td>H</td><td>L</td></tr>
<tr><td>Pin 33</td><td>H</td><td>L</td><td>L</td><td>L</td><td>L</td></tr>
</table></td></tr>
<tr><td>34</td><td>AMUTE</td><td>O</td><td>Used to mute line out sound and picture when no input signal is detected.<br>"H" to mute.</td></tr>
<tr><td>35</td><td>SO (NC)</td><td>O</td><td>Not used.</td></tr>
<tr><td>36,37</td><td>BAND1/BAND2</td><td>O</td><td>Selecting tuner receiving band.
<table>
<tr><td></td><td>Pin36</td><td>Pin37</td></tr>
<tr><td>VHF–L</td><td>L</td><td>H</td></tr>
<tr><td>VHF–H</td><td>H</td><td>L</td></tr>
<tr><td>UHF</td><td>L</td><td>L</td></tr>
</table></td></tr>
<tr><td>38</td><td>THEATER (NC)</td><td>O</td><td>Not used.</td></tr>
<tr><td>39</td><td>VMUTE</td><td>O</td><td>"H" to mute picture display on screen. Used when display OSD.</td></tr>
<tr><td>40</td><td>B(OSD)</td><td>O</td><td>OSD blue output.</td></tr>
<tr><td>41</td><td>G(OSD)</td><td>O</td><td>OSD green output.</td></tr>
<tr><td>42</td><td>R(OSD)</td><td>O</td><td>OSD red output.</td></tr>
</table>

IC, TA8759BN

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 1,3 | SR DEEMP | – | For the connection of a SECAM deemphasis filter. |
| 2,64 | R-Y/B-Y OUT | O | Color difference signal outputs. |
| 4,5,8,9 | SB,SR DET | – | For the connection of a SECAM detection tank coil. |
| 6 | VCC | – | VCC=12V (standard). Power supply of chroma circuits . |
| 7 | COLOR | I | Color control terminal. Goes "L" when the color killer operates. |
| 10,11,21 | SW1,2,3 | I/O | Outputs an identification signal in the auto mode and receives a forced signal in the manual mode. See the logic table for the outputs in the auto mode. When current over 0.75mA (standard) flows to pin 11, an NTSC signal is not accepted. When current over 0.75mA (standard) flows to pin 21, killer is applied to the color-difference outputs and the RGB system is set to the color state. When pin 21 is set to "H" in the manual mode so the above switch is not tumed on, set it to 6.0V + / – 0.5V. (Do not connect to a power supply.) |
| 12 | DL IN | I | PAL /SECAM chroma 1H delayed signal input. |
| 13 | DC | – | DC bias of PAL/NTSC matrix circuit and SECAM permutator. |
| 14 | DL OUT | O | 1H delay line PAL/SECAM chroma output. |
| 15 | TINT | I | Tint control terminal. Can be controlled in the NTSC mode. When the pin voltage is set to 2V or less, the TV can handle a teletext signal in the 312H/313H mode. Set to more than 2V when an ordinary TV/VCR signal is received. |
| 16 | ACC FIL | – | For the connection of an ACC detection filter. |
| 17 | DCFB | – | For the connection of a PAL/NTSC chroma amp DC feedback filter. The filter consists of resistors and extemally attached capacitors. |
| 18 | SECAM IN | I/O | SECAM chroma signal input. Connect to a bell filter. The filter consists of resistors and externally attached capacitors. |
| 19 | C GND | – | Ground of chroma circuits. |
| 20 | P/N IN | I | PAL/NTSC chroma signal input. This is used in common with a SECAM identification select switch. |
| 22,23,27 | P/S/N IDENT | – | For the connection of an identification filter. Pin 22:PAL identification. Pin 23:SECAM identification. Pin 27: NTSC identification. |
| 24 | S REF | – | For the connection of a resonance coil for SECAM identification. Tuned to 4.328 MHz. Adjust so that the DC voltage at the SECAM identification (pin 23) is maximum when a SECAM signal is received. |
| 25 | APC FIL | – | For the connection of an APC filter. |
| 26,28 | 3.58/4.43 IN | – | Crystal oscillator are connected between these pins and pin 30 as color subcarrier oscillators. Connect a 3.58 MHz crystal to pin 26. Connect a 4.43 MHz crystal to pin28 |
| 29 | VOUT | O | Vertical output terminal. |
| 30 | VCO OUT | O | Crystal oscillator are connected between this pin and pin 26 and 28 to form color subcarrier oscillators. |
| 31 | V RAMP | – | The externally attached capicitor is charged by the voltage determined by the zener diode during the vertical retrace period and is discharged with the time constant |

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| | | | determined by external resistors and capacitors during the scanning period to obtain a ramp waveform. |
| 32 | V NF | I | Vertical output AC/DC feedback terminal. |
| 33 | SYNC SEPA | I | Horizontal/vertical sync separator input. Apply a 2Vp-p video signal with negative sync via a filter. |
| 34 | G P TC | – | Connect time constant components to generate a gate pulse. |
| 35 | H BLK | I | Blanking pulse input. The pulse is shaped to apply blanking to the delay line drive, color difference outputs and RGB outputs and change the PAL switch. This is also used as a sync signal output. The masked sync signl is output in a period other than the input blanking pulse period and can be added to detect whether a signal is present, etc.   |
| 36 | AFC | – | For the connection of a filter for the horizontal AFC circuit. |
| 37 | H OSC | – | Forms a 32fH (503kHz) oscillator. |
| 38 | H AFC | I | Forms a horizontal AFC circuit. Apply a sawtooth signal (2Vp-p) obtained by integrating the flyback pulses. |
| 39 | H OUT | O | Horizontal output with 42% duty and 5.1Vp-p (standard). |
| 40 | H VCC | – | H.VCC=9V (standard). Power supply of horizontal deflection circuit. |
| 41-43 | R/G/B OUT | O | Pin 41: R output, Pin 42: G output, pin 43: B output. |
| 44-46 | R/G/B CLAMP | – | For the connection of clamp capacitors. Pin 44: R, Pin 45: G, Pin 46: B. |
| 47,49,51 | R/G/B TX | I | External RGB signal inputs The signal level is 0.7Vp-p. |
| 48 | BRT | I | Brightness control terminal. |
| 50 | V/D GND | – | Ground of deflection and video systems. |
| 52 | X-RAY | I | Overvoltage protector circuit. The threshold is 1.3V (standard). If a voltage exceeding this is applied, the horizontal output terminal (pin 39) is set to "L". |
| 53 | TV/TX SW | I | Switch chamged between the TV and external RGB signals and for blanking.   |
| 54 | HALF TONE | I | Halftone switch. The threshold voltage is as follows. This pin is also used as a WPS (white peak supppressor) switch. Halftone / WPS off on.   |

| Pin No. | Pin Name | I/O | Description |
|---|---|---|---|
| 55 | SHARP | I | Picture control terminal. This is also used as a video muting terminal. When the voltage is 0.7V or less, the brightness (pin 48) is set to 3V for the TV mode. |
| 56 | PICT IN | I | Secondary differential signal input. |
| 57 | Y CLAMP | – | For the connection of a pedestal clamp capacitor. |
| 58 | Y IN | I | Video signal input terminal. Apply a video signal with negative sync. |
| 59 | CONT -CONT | I | Uni-color control. Controls the color gain as well as the video gain. This is also used as an extemal RGB contrast control. |
| 60,62 | R-Y/B-Y IN | I | Color difference signal input termial. Pin 60: R-Y input, Pin 62: B-Y input. |
| 61 | VCC | – | VCC=12V (standard). Power supply of video, chroma and deflection systems. |
| 63 | VCC | – | Power supply of RGB output circuit. |

Logic Table in Auto Mode

| Identification | | | Crystal mode | SW I | SW II | SW III | Discriminated mode |
|---|---|---|---|---|---|---|---|
| PAL | SECAM | NTSC | | PIN 10 | PIN 11 | PIN 21 | |
| PIN 22 | PIN 23 | PIN 27 | | | | | |
| H | L | H | 4.43 | H | H | M | PAL |
| L | H | L | 4.43 | H | M | M | SECAM |
| L | L | H | 4.43 | L | H | M | 4.43 NTSC |
| L | L | H | 3.58 | L | L | M | 3.58 NTSC |
| L | L | L | 4.43/3.58 | L | M/L | L | B/W |
| H ⟶ VCC<br>L = 6V | | | — | H = 6.0V (1/2VCC)<br>M = 2.0V(1/16VCC)<br>L = 0V (grounded with 30 kΩ), output from the IC. | | | — |

Switch Input Voltages in Manual Mode

| MODE | SW I | SW II | SW III |
|---|---|---|---|
| | PIN 10 | PIN 11 | PIN 21 |
| PAL | H | H | H |
| SECAM | H | (M) | H |
| 4.43 NTSC | (L) | H | H |
| 33.58 NTSC | (L) | (L) | H |

Set "H" to 6V ± 0. 5V.
"L" to 0V.
The outputs in the parenthese ( ) are determined within the IC automatically when the remaining pins are set to "H".

# VOLTAGE CHART

INPUT VIDEO : PAL COLOR BAR (600Ω)
AUDIO : 1Vp-p 1kHz (75Ω)
VOL = 31
} LEADER LT415PS

IC1 M37220M3-150SP

| PIN NO. | NORMAL | CINEMA | STANDBY |
|---|---|---|---|
| 1 | 3.9 | 3.9 | 5.0 |
| 2 | 4.7 | 4.7 | 5.0 |
| 3 | 0.1 | 0.1 | 0 |
| 4 | 2.4 | 2.4 | 0 |
| 5 | 2.0 | 2.0 | 0 |
| 6 | 1.6 | 1.6 | 0 |
| 7 | 3.3 | 3.3 | 0 |
| 8 | 1.8 | 0.8 | 0 |
| 9 | 4.9 | 4.9 | 4.9 |
| 10 | 4.9 | 4.9 | 4.9 |
| 11 | 0.7 | 0.7 | 0 |
| 12 | 0 | 0 | 4.9 |
| 13 | 0 | 0 | 4.9 |
| 14 | 4.9 | 4.9 | 4.9 |
| 15 | 0 | 0 | 0 |
| 16 | 0.8 | 0.8 | 0.8 |
| 17 | 4.9 | 4.9 | 4.9 |
| 18 | 0 | 0 | 0 |
| 19 | 2.2 | 2.2 | 2.2 |
| 20 | 2.1 | 2.1 | 2.0 |
| 21 | 0 | 0 | 0 |
| 22 | 5.0 | 5.0 | 5.0 |
| 23 | 4.9 | 4.9 | 4.1 |
| 24 | 0 | 0 | 0 |
| 25 | 4.9 | 4.9 | 4.9 |
| 26 | 4.9 | 4.9 | 4.9 |
| 27 | 0 | 0 | 0 |
| 28 | 5.0 | 5.0 | 5.0 |
| 29 | 1.7 | 1.7 | 0 |
| 30 | 5.0 | 4.9 | 5.0 |
| 31 | 4.9 | 4.9 | 4.9 |
| 32 | 4.9 | 4.9 | 4.9 |
| 33 | 4.9 | 4.9 | 4.9 |
| 34 | 0 | 0 | 4.6 |
| 35 | 0 | 0 | 0 |
| 36 | 0 | 0 | 0 |
| 37 | 4.9 | 4.9 | 4.9 |
| 38 | 0 | 0 | 0 |
| 39 | 0 | 0 | 0 |
| 40 | 0 | 0 | 0 |
| 41 | 0 | 0 | 0 |
| 42 | 0 | 0 | 0 |

IC2 BMR-4201

| PIN NO. | NORMAL | CINEMA | STANDBY |
|---|---|---|---|
| 1 | 5.0 | 5.0 | 5.0 |
| 2 | 0 | 0 | 0 |
| 3 | 4.9 | 4.9 | 4.9 |

IC3 AT24C02-10PI

| PIN NO. | NORMAL | CINEMA | STANDBY |
|---|---|---|---|
| 1 | 0 | 0 | 0 |
| 2 | 0 | 0 | 0 |
| 3 | 0 | 0 | 0 |
| 4 | 0 | 0 | 0 |
| 5 | 4.9 | 4.9 | 4.9 |
| 6 | 5.0 | 5.0 | 5.0 |
| 7 | 0 | 0 | 0 |
| 8 | 5.0 | 5.0 | 5.0 |

IC4 PIC-21043SP

| PIN NO. | NORMAL | CINEMA | STANDBY |
|---|---|---|---|
| 1 | 0 | 0 | 0 |
| 2 | 5.0 | 5.0 | 5.0 |
| 3 | 4.9 | 4.9 | 4.9 |

IC101 KA33V

| PIN NO. | NORMAL | CINEMA | STANDBY |
|---|---|---|---|
| 1 | 32.6 | 32.6 | 32.6 |
| 2 | 0 | 0 | 0 |

IC201 LA7565N

| PIN NO. | NORMAL | CINEMA | STANDBY |
|---|---|---|---|
| 1 | 2.2 | 2.2 | 0 |
| 2 | 2.2 | 2.2 | 0 |
| 3 | 7.5 | 7.5 | 0 |
| 4 | 8.1 | 8.1 | 0 |
| 5 | 8.9 | 8.9 | 0 |
| 6 | 3.7 | 3.7 | 0 |
| 7 | 3.2 | 3.2 | 0 |
| 8 | 2.7 | 2.7 | 0 |
| 9 | 2.9 | 2.9 | 0 |
| 10 | 2.7 | 2.7 | 0 |
| 11 | 8.5 | 8.5 | 0 |
| 12 | 8.6 | 8.6 | 0 |
| 13 | 3.9 | 3.9 | 0 |
| 14 | 8.0 | 8.0 | 0 |
| 15 | 1.7 | 1.7 | 0 |
| 16 | 1.6 | 1.6 | 0 |
| 17 | 0.1 | 0.1 | 0 |
| 18 | 3.6 | 3.6 | 0 |
| 19 | 3.6 | 3.6 | 0 |
| 20 | 0 | 0 | 0 |
| 21 | 1.7 | 1.7 | 0 |
| 22 | 2.6 | 2.6 | 0 |
| 23 | 3.0 | 3.0 | 0.1 |
| 24 | 3.5 | 3.5 | 0 |

IC302 TC4053BP

| PIN NO. | NORMAL | CINEMA | STANDBY |
|---|---|---|---|
| 1 | 0.2 | 0.2 | 0 |
| 2 | 3.3 | 3.3 | 0 |
| 3 | 3.3 | 3.3 | 0 |
| 4 | 0 | 0 | 0 |
| 5 | 0.2 | 0.2 | 0 |
| 6 | 0 | 0 | 0 |
| 7 | 0 | 0 | 0 |
| 8 | 0 | 0 | 0 |
| 9 | 0 | 0 | 0 |
| 10 | 0 | 0 | 0 |
| 11 | 0 | 0 | 0 |
| 12 | 4.6 | 4.6 | 0 |
| 13 | 4.1 | 4.1 | 0 |
| 14 | 4.6 | 4.6 | 0 |
| 15 | 3.3 | 3.3 | 0 |
| 16 | 12.2 | 0.1 | 0 |

IC401 AN5265

| PIN NO. | NORMAL | CINEMA | STANDBY |
|---|---|---|---|
| 1 | 12.1 | 12.1 | 0.1 |
| 2 | 5.4 | 5.4 | 0 |
| 3 | 0 | 0 | 0 |
| 4 | 0.6 | 0.6 | 0 |
| 5 | 6.8 | 6.8 | 6.0 |
| 6 | 6.9 | 6.9 | 6.0 |
| 7 | 0 | 0 | 0 |
| 8 | 6.6 | 6.6 | 6.1 |
| 9 | 13.9 | 13.9 | 13.3 |

IC501 LA7832

| PIN NO. | NORMAL | CINEMA | STANDBY |
|---|---|---|---|
| 1 | 0 | 0 | 0 |
| 2 | 14.3 | 14.3 | 0 |
| 3 | 24.6 | 24.6 | 1.1 |
| 4 | 0.8 | 0.8 | 0 |
| 5 | 0.7 | 0.7 | 0 |
| 6 | 24.3 | 24.3 | 0 |
| 7 | 1.5 | 1.5 | 0 |

IC802 TLP721

| PIN NO. | NORMAL | CINEMA | STANDBY |
|---|---|---|---|
| 1 | 0 | 0 | 0 |
| 2 | 0 | 0 | 0 |
| 3 | 0.3 | 0.3 | 0.5 |
| 4 | 4.1 | 4.1 | 3.9 |

IC801 STR-S6707-A

| PIN NO. | NORMAL | CINEMA | STANDBY |
|---|---|---|---|
| 1 | 0 | 0 | 0.2 |
| 2 | 0 | 0 | 0 |
| 3 | 0.1 | 0.1 | 0 |
| 4 | 0.5 | 0.5 | 0.4 |
| 5 | 1.4 | 1.4 | 1.1 |
| 6 | 0 | 0 | 0 |
| 7 | 0.2 | 0.2 | 0.2 |
| 8 | 0.5 | 0.5 | 0 |
| 9 | 4.1 | 4.1 | 7.0 |

IC804 KIA7812PI

| PIN NO. | NORMAL | CINEMA | STANDBY |
|---|---|---|---|
| 1 | 16.4 | 16.4 | 1.9 |
| 2 | 0 | 0 | 0 |
| 3 | 12.2 | 12.2 | 0.1 |

IC805 KIA7809PI

| PIN NO. | NORMAL | CINEMA | STANDBY |
|---|---|---|---|
| 1 | 12.2 | 12.2 | 0.1 |
| 2 | 0 | 0 | 0 |
| 3 | 8.9 | 8.9 | 0 |

IC803 SE115N

| PIN NO. | NORMAL | CINEMA | STANDBY |
|---|---|---|---|
| 1 | 0 | 0 | 0 |
| 2 | 0 | 0 | 0 |
| 3 | 0 | 0 | 0 |

IC806 NJM78L05A

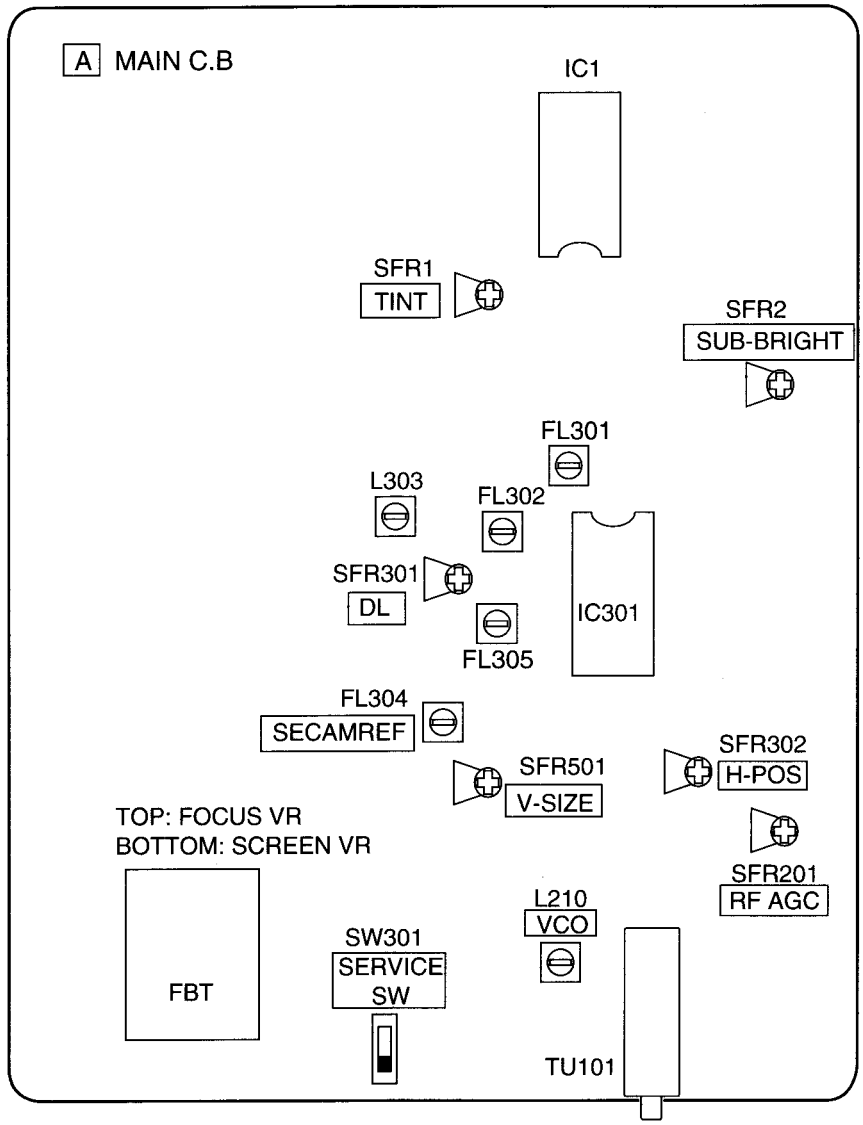
| PIN NO. | NORMAL | CINEMA | STANDBY |
|---|---|---|---|
| 1 | 5.0 | 5.0 | 4.9 |
| 2 | 0 | 0 | 0 |
| 3 | 14.1 | 14.0 | 13.4 |

IC301 TA8759BN

| PIN NO. | INPUT PAL COLOR BAR | | | INPUT NTSC COLOR BAR | | |
|---|---|---|---|---|---|---|
| | NORMAL | CINEMA | STANDBY | NORMAL | CINEMA | STANDBY |
| 1 | 8.7 | 8.7 | 0 | 8.7 | 8.7 | 0 |
| 2 | 8.2 | 8.2 | 0 | 8.1 | 8.1 | 0 |
| 3 | 8.7 | 8.7 | 0 | 8.7 | 8.7 | 0 |
| 4 | 6.6 | 6.6 | 0.1 | 6.6 | 6.6 | 0.1 |
| 5 | 6.6 | 6.6 | 0.1 | 6.6 | 6.6 | 0.1 |
| 6 | 12.2 | 12.2 | 0.1 | 12.2 | 12.2 | 0.1 |
| 7 | 3.4 | 3.4 | 0 | 3.4 | 3.4 | 0 |
| 8 | 6.6 | 6.6 | 0.1 | 6.6 | 6.6 | 0.1 |
| 9 | 6.6 | 6.6 | 0.1 | 6.6 | 6.6 | 0.1 |
| 10 | 6.1 | 6.1 | 0.7 | 0.1 | 0.1 | 0.7 |
| 11 | 6.1 | 6.1 | 0 | 0.1 | 0.1 | 0 |
| 12 | 5.3 | 5.3 | 0 | 5.3 | 5.3 | 0 |
| 13 | 5.3 | 5.3 | 0 | 5.3 | 5.3 | 0 |
| 14 | 8.0 | 8.0 | 0 | 10.4 | 10.4 | 0 |
| 15 | 6.2 | 6.2 | 0 | 6.2 | 6.2 | 0 |
| 16 | 10.9 | 10.9 | 0.1 | 11.0 | 11.0 | 0.1 |
| 17 | 3.5 | 3.5 | 0 | 3.5 | 3.5 | 0 |
| 18 | 4.5 | 4.5 | 0 | 7.4 | 7.4 | 0 |
| 19 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20 | 5.1 | 5.1 | 0 | 5.1 | 5.1 | 0 |
| 21 | 2.1 | 2.1 | 0 | 2.1 | 2.1 | 0 |
| 22 | 11.5 | 11.5 | 0 | 5.4 | 5.4 | 0 |
| 23 | 5.5 | 5.5 | 0 | 5.4 | 5.4 | 0 |

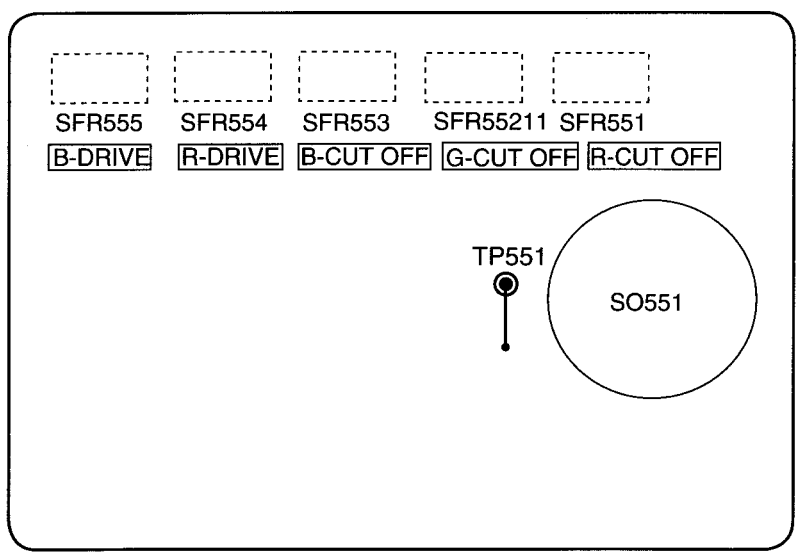
| PIN NO. | INPUT PAL COLOR BAR | | | INPUT NTSC COLOR BAR | | |
|---|---|---|---|---|---|---|
| | NORMAL | CINEMA | STANDBY | NORMAL | CINEMA | STANDBY |
| 24 | 5.9 | 5.9 | 0.1 | 5.9 | 5.9 | 0 |
| 25 | 4.9 | 4.9 | 0 | 4.9 | 4.9 | 0 |
| 26 | 11.2 | 11.2 | 0 | 3.4 | 3.4 | 0 |
| 27 | 11.2 | 11.2 | 0 | 11.2 | 11.2 | 0 |
| 28 | 3.4 | 3.4 | 0 | 3.4 | 3.4 | 0 |
| 29 | 0.7 | 0.7 | 0 | 0.7 | 0.7 | 0 |
| 30 | 8.6 | 8.6 | 0.1 | 7.9 | 7.9 | 0.1 |
| 31 | 6.7 | 6.7 | 0 | 6.7 | 6.7 | 0 |
| 32 | 6.6 | 6.6 | 0 | 6.6 | 6.6 | 0 |
| 33 | 6.9 | 6.9 | 0 | 6.8 | 6.8 | 0 |
| 34 | 3.4 | 3.4 | 0.4 | 3.4 | 3.4 | 0.4 |
| 35 | 1.0 | 1.0 | 0 | 1.0 | 1.0 | 0 |
| 36 | 7.4 | 7.4 | 0.4 | 7.3 | 7.3 | 0.4 |
| 37 | 5.5 | 5.5 | 0.3 | 5.5 | 5.5 | 0.2 |
| 38 | 6.6 | 6.6 | 0 | 6.7 | 6.7 | 0 |
| 39 | 2.0 | 2.0 | 0 | 2.1 | 2.1 | 0 |
| 40 | 8.7 | 8.8 | 0.4 | 8.8 | 8.8 | 0.4 |
| 41 | 3.2 | 3.1 | 0.1 | 3.1 | 3.1 | 0.1 |
| 42 | 3.2 | 3.2 | 0.1 | 3.2 | 3.2 | 0.1 |
| 43 | 3.2 | 3.1 | 0.1 | 3.2 | 3.2 | 0.1 |
| 44 | 5.2 | 5.2 | 0.1 | 5.2 | 5.2 | 0 |
| 45 | 5.1 | 5.1 | 0 | 5.1 | 5.1 | 0 |
| 46 | 5.2 | 5.2 | 0 | 5.2 | 5.2 | 0 |
| 47 | 7.1 | 7.1 | 0 | 7.1 | 7.1 | 0 |
| 48 | 2.9 | 2.9 | 0 | 2.9 | 2.9 | 0 |
| 49 | 7.1 | 7.1 | 0 | 7.1 | 7.1 | 0 |
| 50 | 0 | 0 | 0 | 0 | 0 | 0 |
| 51 | 7.2 | 7.2 | 0 | 7.2 | 7.2 | 0 |
| 52 | 0 | 0 | 0 | 0 | 0 | 0 |
| 53 | 0 | 0 | 0 | 0 | 0 | 0 |
| 54 | 2.2 | 2.2 | 0 | 2.2 | 2.2 | 0 |
| 55 | 6.2 | 6.0 | 0.1 | 6.2 | 6.0 | 0.1 |
| 56 | 3.2 | 3.2 | 0 | 3.2 | 3.2 | 0 |
| 57 | 5.9 | 5.9 | 0 | 5.9 | 5.9 | 0 |
| 58 | 4.9 | 4.9 | 0.1 | 4.9 | 4.9 | 0.3 |
| 59 | 3.2 | 3.2 | 0 | 3.2 | 3.2 | 0.2 |
| 60 | 6.1 | 6.1 | 0 | 6.1 | 6.1 | 0 |
| 61 | 12.2 | 12.2 | 0.1 | 12.2 | 12.2 | 0.1 |
| 62 | 6.1 | 6.1 | 0 | 6.1 | 6.1 | 0 |
| 63 | 12.2 | 12.2 | 0.1 | 12.2 | 12.2 | 0.1 |
| 64 | 8.1 | 8.1 | 0 | 8.2 | 8.2 | 0 |

| REF. NO. | B | | | C | | | E | | |
|---|---|---|---|---|---|---|---|---|---|
| | NORMAL | CINEMA | STANDBY | NORMAL | CINEMA | STANDBY | NORMAL | CINEMA | STANDBY |
| Q3 | 0 | 0 | 0.7 | 6.8 | 7.0 | 0.1 | 0 | 0 | 0 |
| Q4 | 4.9 | 4.9 | 4.9 | 0 | 0 | 0 | 0 | 0 | 0 |
| Q6 | 0 | 0 | 4.6 | 0.7 | 0.7 | 0 | 0 | 0 | 0 |
| Q7 | 0 | 0 | 4.6 | 4.6 | 4.6 | 0 | 0 | 0 | 0 |
| Q10 | 0.6 | 0.6 | 0 | 0 | 0 | 4.5 | 0 | 0 | 0 |
| Q11 | 0 | 0 | 0 | 4.9 | 4.9 | 4.9 | 0 | 0 | 0 |
| Q12 | 4.9 | 4.9 | 4.9 | 0 | 0 | 0 | 0 | 0 | 0 |
| Q13 | 4.9 | 4.9 | 4.9 | 0 | 0 | 0 | 0 | 0 | 0 |
| Q14 | 4.9 | 4.9 | 4.9 | 0 | 0 | 0 | 0 | 0 | 0 |
| Q15 | 4.6 | 4.6 | 0.1 | 0 | 0 | 0 | 5.2 | 5.2 | 0.2 |
| Q16 | 6.1 | 6.1 | 0.1 | 0 | 0 | 0 | 5.2 | 5.2 | 0.2 |
| Q205 | 3.6 | 3.6 | 0 | 0 | 0 | 0 | 1.4 | 1.3 | 0 |
| Q207 | 2.3 | 2.3 | 0 | 8.9 | 8.9 | 0 | 1.7 | 1.7 | 0 |
| Q306 | 3.6 | 3.6 | 0.1 | 0 | 0 | 0.1 | 0 | 0 | 0 |
| Q308 | 3.0 | 3.0 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Q318 | 3.6 | 3.6 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Q321 | 0 | 0 | 0 | 5.3 | 5.3 | 0 | 0 | 0 | 0 |
| Q322 | 0 | 0 | 0 | 3.5 | 3.5 | 0 | 0 | 0 | 0 |
| Q371 | 16.1 | 15.3 | 0.5 | 0.7 | 0.6 | 0.3 | 16.1 | 16.1 | 0.9 |
| Q372 | 0 | 0 | 0.1 | 12.2 | 12.2 | 0.2 | 4.6 | 4.6 | 0 |
| Q373 | 0 | 0 | 0.4 | 12.2 | 12.2 | 0 | 4.6 | 4.6 | 0 |
| Q501 | 0.1 | 0.1 | 0 | 4.7 | 4.7 | 5.0 | 0 | 0 | 0 |
| Q502 | 0 | 0 | 0 | 4.5 | 4.5 | 0.1 | 0 | 0 | 0 |
| Q551 | 2.2 | 2.2 | 0 | 0 | 0 | 0 | 2.7 | 2.7 | 0.2 |
| Q552 | 2.2 | 2.2 | 0 | 0 | 0 | 0 | 2.7 | 2.7 | 0.1 |
| Q553 | 2.2 | 2.2 | 0 | 0 | 0 | 0 | 2.7 | 2.7 | 0.1 |
| Q554 | 1.5 | 1.5 | 0 | 0 | 0 | 0 | 2.2 | 2.2 | 0 |
| Q601 | 0.4 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Q604 | 0 | 0 | 0.7 | 8.8 | 8.8 | 0.2 | 0 | 0 | 0 |




MAIN (TV) Circuit Board (Component Side)

B NK C.B

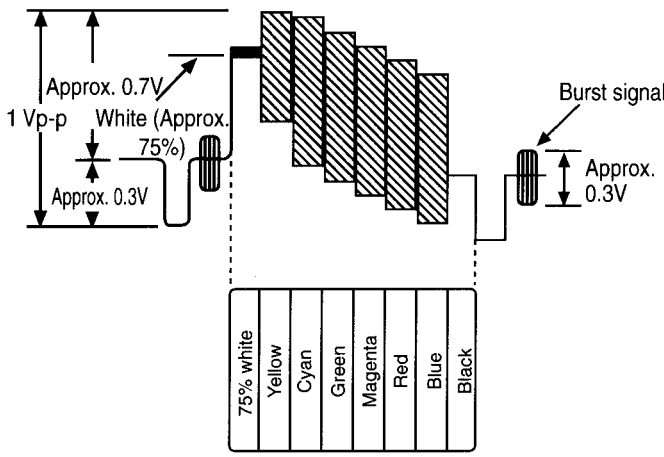



NK Circuit Board (Solder Side)

# SET-UP FOR ADJUSTMENT

Because the video signal output from a pattern generator is used as the adjustment signal input during adjustment, the video signal output from the pattern generator must conform with the specifications. Measure the output waveform across 75 Ω load. Confirm that the synchronizing signal has an amplitude of about 0.3 V, the video signal portion has an amplitude of about 0.7 V and the burst signal has an amplitude of about 0.3 V with flat envelope. Confirm that ratio of the burst signal amplitude and the red signal amplitude is 0.30 : 0.66. If the output signal does not conform with the specifications, calibrate the pattern generator. (Refer to pattern generator operation manual.) Use the LEADER: LCG 404 for the pattern generator.

Color bar signal of a pattern generator




TV display

## Precautions before starting adjustment

Satisfy the following setting conditions before starting adjustment.

- Allow warm-up of 20 minutes or longer. (Do not turn off during warm-up.)
- Set all picture quality controls of users' setting to initial set-up, unless otherwise specified. (refer to Table 1)
- Set the pattern generator's output level at 1.0Vp-p (across 75Ω load).

| POSITION | BRIGHT | CONTRAST | SHARPNESS | COLOR |
|---|---|---|---|---|
| NORMAL | 32 | 54 | 32 | 32 |
| CINEMA | 32 | 48 | 16 | 32 |
| GAME | 32 | 32 | 16 | 32 |
| DIMMER | 16 | 16 | 32 | 32 |

Table 1 (Initial image quality setting)

## 1. CRT Adjustment

### 1-1. Precautions

(1) Receive the white raster signal, and then perform edging for at least 20 minutes.
(2) Demagnetize the area surrounding the CRT with a degausser before making adjustments.
(3) Set the picture quality for each mode to the factory setting.
(4) Position the front screen facing to the east as much as possible.

### 1-2 Purpose

(1) Beam landing adjustment (purity magnet)

Set the left/right balance of beam landing. If there is a discrepancy in this adjustment, a color irregularity will occur. After completion of the landing adjustment, it is necessary to perform a convergence adjustment.

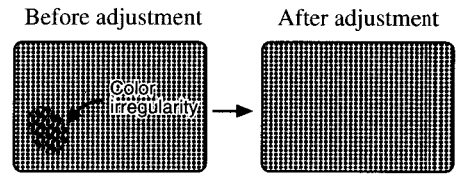
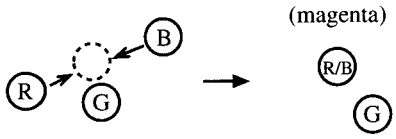



Fig. 1-1

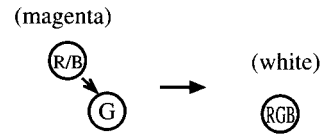
(2) Beam convergence adjustment (4-pole magnet)

Align the R beam with the B beam. The G beam does not move with this adjustment.




Align the R beam with the B beam
Fig. 1-2

(3) Beam convergence adjustment (6-pole magnet)
With a 4-pole magnet align the G beam with the already aligned R/B beam.




Align the G beam with the R/B beam
Fig. 1-3

(4) The composition of each magnet is as appears in Fig. 1-4.

In making adjustments, rotate the lock ring clockwise (looking from the CRT's back screen) and disengage.
Be careful not to loose the lock ring too much. If the magnet assembly has become shifted during adjustments, secure it to the position in Fig. 1-4.

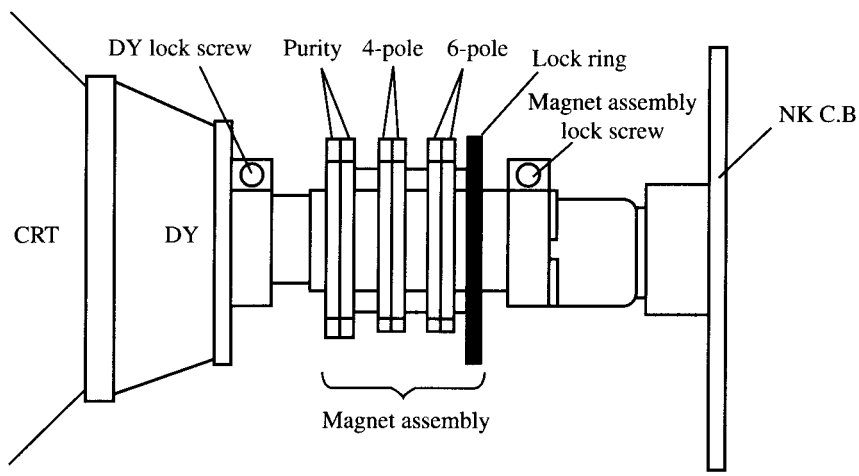



Fig 1-4

## 1-3. Beam Landing Adjustment

(1) Receive the green raster signal through the pattern generator.
(2) Loosen the magnet lock screw, and shift the magnet assembly backward (toward the neck).
(3) Loosen the DY lock screw, and shift the DY deflecting yoke backward (toward the neck).
(4) After opening the two purity magnets to the same angle, adjust the color width of the bands on both sides of the screen so that they are of equal width. (refer to Fig. 1-5 (a)).

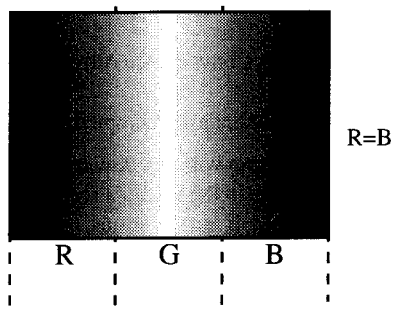



Fig 1-5 (a)

As shown in Fig. 1-5 (b), the purity magnet functions in relation to the electron beam.

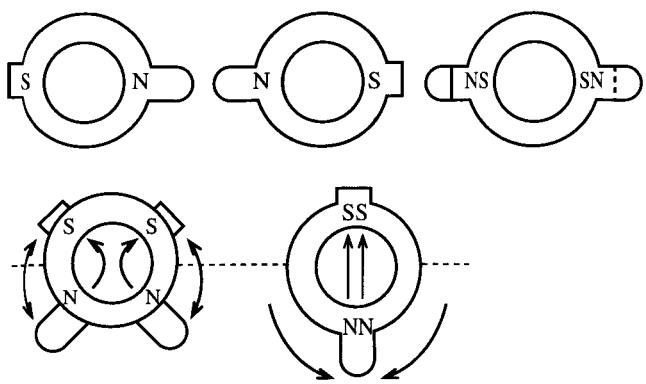



Fig 1-5 (b)

(5) Gradually shift the deflecting yoke toward the front (toward the CRT funnel). Stop movement at the point when the screen has become completely green.
(6) Also, verify the respective monochromatics of red and blue.
(7) While looking at the screen, adjust the tilt of the deflecting yoke and tighten the DY lock screw.
(8) Shift the magnet assembly to the front (toward the CRT funnel), stop movement before the adjustment position and then tighten the magnet lock screw.
At this time, be careful not to shift the position of the purity magnet.

※ As there is occurrence of convergence distortion after completing the landing adjustments, be certain to carry out convergence adjustments.

※ If the color irregularity in the screen's corner section are not improved, correct them with the landing magnet. After using the landing magnet, be sure to demagnetize the CRT with degausser and verify that there is no occurrence of color irregularity. (refer to Fig. 1-6)

Landing magnet: 81-JTI-710-010
(two-sided adhesive tape) : 80-XVI-218-010 Cushion

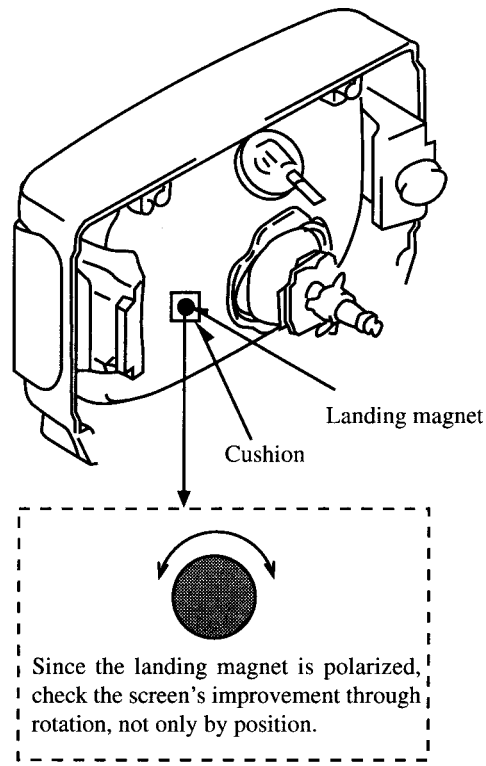

Landing magnet
Cushion
Since the landing magnet is polarized, check the screen's improvement through rotation, not only by position.

Fig 1-6

## 1-4. Beam Center Convergence Adjustment

Make adjustments on the convergence with 4-pole and 6-pole magnets. Operate each magnet in relation to the electron beam as shown in Figs. 1-7 and 1-8. When performing this adjustment, verify whether there is distortion in the focus adjustment. If necessary, carry out adjustments again.

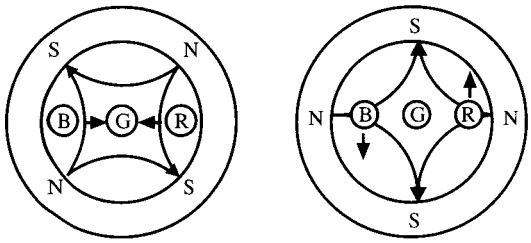



Fig 1-7

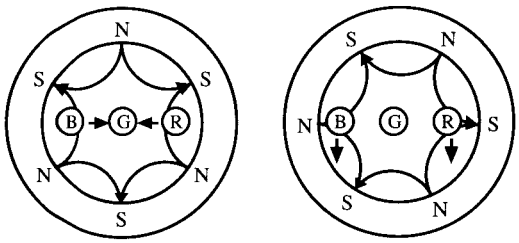



Fig 1-8

In Fig. 1-7, two 4-pole magnets are stacked together so as to be of the same polarity. Move the B and R beams to their respective direction, by rotating the two 4-pole magnets together. By adjusting the opening of the two magnets, it is possible to adjust the amount of the beam's movement.

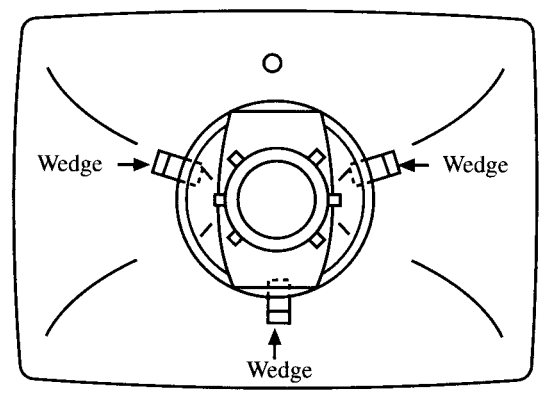
In Fig. 1-8, the two 6-pole magnets are stacked together so as to be of the same polarity. Move the B and R beams to their respective direction, by rotating the two 6-pole magnets together. By adjusting the opening of the two magnets, it is possible to adjust the amount of the beam's movement.

(1) Receive the dot pattern signal through the pattern generator.
(2) Pay attention to the center of the screen, and perform adjustments with two 4-pole magnets so that the R beam and the B beam perfectly align and become a magenta color. (refer to Fig. 1-2)
(3) In the same way, pay attention to the screen, and perform adjustments with a 6-pole magnet so that the magenta beam and the G beam align and become a white dot. (refer to Fig. 1-3)
(4) After adjustments are completed, secure all magnets with the lock link. (Refer to Fig. 1-4)

## 1-5. The Surrounding Convergence Adjustment

Make this adjustment after completion of adjustment 1-4.

(1) Shake the deflecting yoke up, down, right and left, and adjust any discrepancies in the screen's surroundings.
(2) Insert wedges in three locations in the gap between the deflecting yoke and the surface of the CRT funnel in order to secure the deflecting yoke. (refer to Fig. 1-9)




Position of wedge

Fig. 1-9

## 2. ELECTRICAL ADJUSTMENT

### 2-1. Screen Adjustment

(1) Set the TV to the external input mode (no input).
(2) Short the IC501 Pin 1 and Pin 4 and set the screen in single horizontal line.
(3) Connect an oscilloscope to S0551 Pin 9 (on the NK C.B.).
(4) Adjust SFR 2 (Sub-bright) so the voltage at S0551 Pin 9 is ± 5V DC. (See Figure 2-1)
(5) Adjust the SCREEN VR (FBT) so that a horizontal line begins to appear at the center of the screen.
(6) Release the short-circuit point.

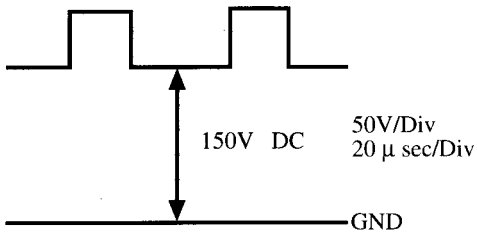



Fig 2-1

❖ Be sure to perform the sub-bright adjustment after completing this adjustment.

### 2-2. White Balance Adjustment (NK C.B.)

(1) Receive a PAL raster signal (white).
(2) Set the customer picture controls "bright" and "contrast" to minimum.
(3) Set the CUT OFF SFR (SFR551, SFR552, SFR553) and DRIVE SFR (SFR554, SFR555) to their mechanical centers.
(4) Leaves the CUT OFF SFR of the color which is brightest on the screen as it is and use other two CUT OFF SFR to adjust the white balance.
(5) Set the customer picture controls "brightness" and "contrast" to maximum.
(6) Turn SFR554 (R DRIVE) fully counterclockwise so the whole screen becomes red.
(7) Turn SFR554 (R DRIVE) gradually clockwise and stop it where red disappears from the screen.
(8) Turn SFR555 (B DRIVE) fully counterclockwise so the whole screen becomes blue.
(9) TurnSFR555 (B DRIVE) gradually clockwise and stop it where blue disappears from the screen.
(10) Repeat steps (1)-(4) and (5)-(9) until the white balance has been adjusted completey.
(11) Return the customer picture controls to their original positions.
(12) Receive a stairstep signal (color bar with chroma off) and check that there is no unnatural color at any bands.

❖ Perform 2-3 Sub-bright adjustment after completing the white balance adjustment.

### 2-3. Sub-bright Adjustment

(1) Receive a PAL stairstep signal (color bar with chroma off).
(2) Adjust SFR2 so the band next to the right end start to light. (See Figure 2-2)

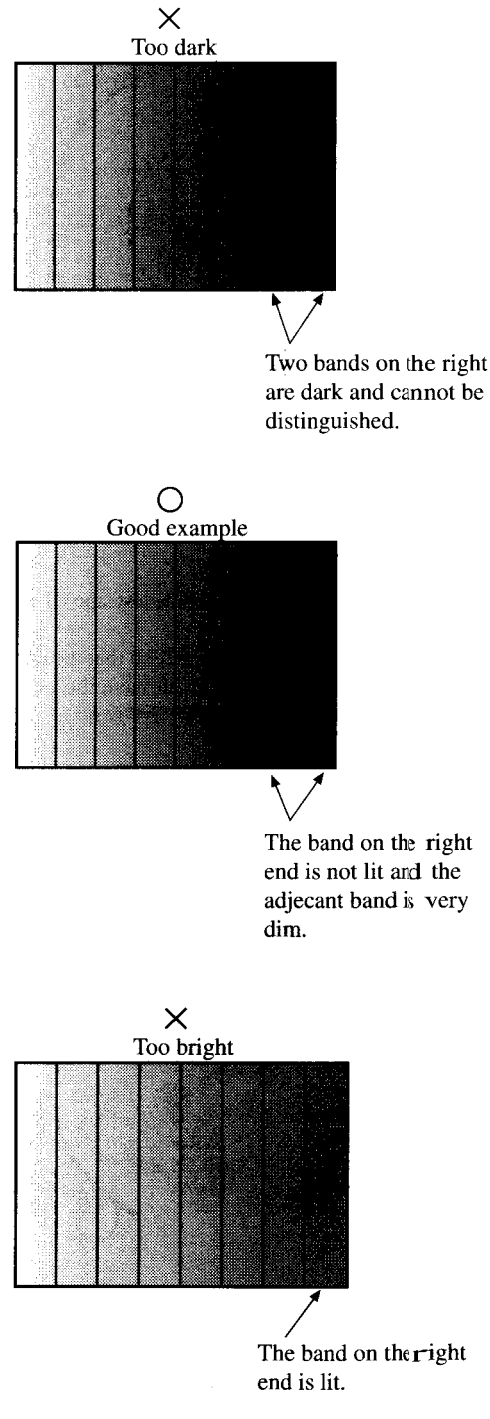

×
Too dark
Two bands on the right are dark and cannot be distinguished.
○
Good example
The band on the right end is not lit and the adjecant band is very dim.
×
Too bright
The band on the right end is lit.

Fig 2-2

### 2-4. Focus Adjustment

(1) Receive a PAL dot pattern signal.
(2) Adjust the FOCUS SFR (FBT) so the focus of the dots is optimum.

## 2-5. Center Position Adjustment

(1) Input the following signals.
Monoscope signal of the test tape TTV-06T (connect video)
(2) As is shown in Fig. 2-3, make adjustments with SFR 302 so that the scales on both sides of the screen are the same.

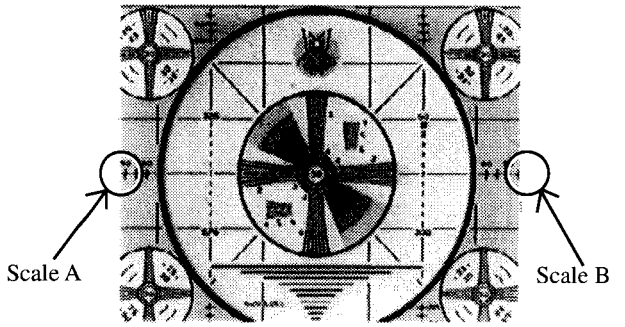



Fig 2-3

## 2-6. Vertical Size Adjustment

(1) Input the monoscopic signal of the test tape TTV-06T. (connect video)
(2) Make adjustments with SFR 501 so that the upper and lower scales on the monoscope screen have the numerical values that appear below. (refer to Fig. 2-4 (a))

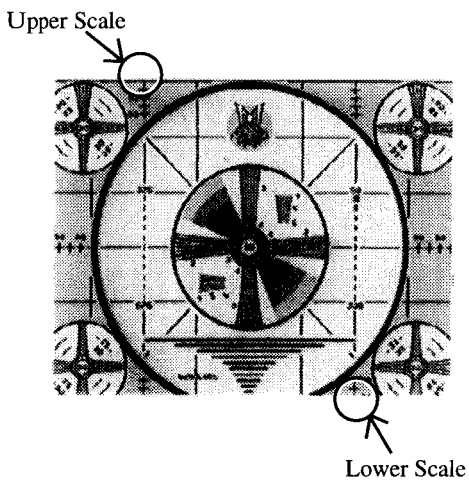



Fig 2-4 (a)

(Simple Adjustment Method)

(1) Using LEADER LCG-404, input the cross hatch signal.
(2) As is shown in Fig. 2-4 (b), make adjustments with SFR 501 so that the number of vertical squares is 13.

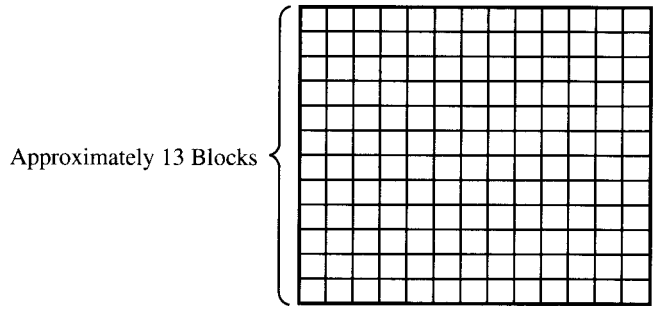



Fig. 2-4 (b)

## 2-7. Sub-tint Adjustment

(1) Receive an NTSC 3.58 MHz color bar signal.
(2) Connect an oscilloscope to Q553. Collector (on the NK C.B).
(3) Adjust SFR1 so the bottom edges of the waveform fall on one line. (See figure 2-5)

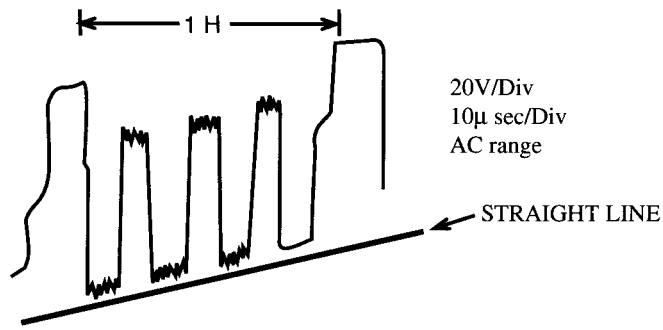



Fig 2-5

## 2-8. AGC Adjustment

(1) Receive a PAL signal under the following conditions.
Input level: 60 dBμ
Modulation percentage: 87.5%
Received channel : CCIR CH E12
(2) Adjust SFR201 so the voltage at the TU101 Pin1 is 6.0V ± 0.2VDC.

(Simple Adjustment Method)

(1) Using the LEADER LCG-404 (65dBμ), receive the color bar signal on channel 12.
(2) With SPR 201, make adjustments so that the voltage of TU101 pin 1 becomes 3.6VDC.
(3) Receive a television broadcast, and verify that the screen is clear.

## 2-9. PAL DELAY Adjustment

(1) Receive a PAL DEM pattern signal.
(2) Connect the oscilloscope to IC301 Pin 60.
(3) Adjust SFR301 and L303 several times alternately so the A and B components are minimum. (See Figure 2-6).

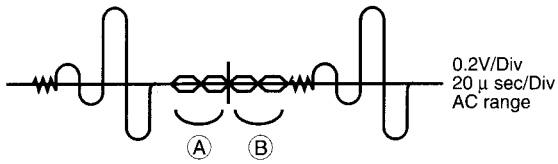



Fig. 2-6

(Simple Adjustment Method)

(1) Input the PAL color bar signal.
(2) Connect the oscilloscope to the IC301 Pin 60.
(3) Make adjustments with SFR 301 so that amplitude becomes 1.3Vp-p. Also, with L303 make adjustments so that the distortion in the waveforms becomes decreased. (Refer to Fig. 2-7)

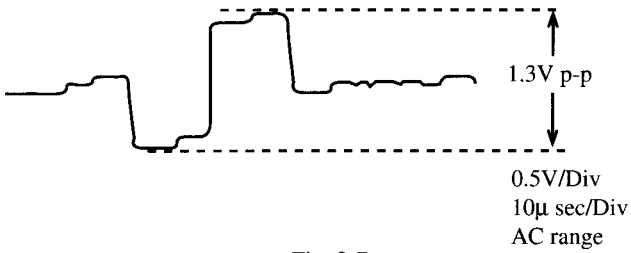



Fig. 2-7

## 2-10. SECAM Reference Coil Adjustment

(1) Receive a SECAM color bar signal.
(2) Connect a DC voltmeter to IC301 Pin23.
(3) Adjust FL305 so the DC voltage is maximum (more than 10V).

## 2-11. SECAM Detector Coil Adjustment

(1) Receive a SECAM color bar signal.
(2) Connect an oscilloscope to IC301 Pin60.
(3) R-Y adjustment
Adjust FL302 so the amplitude from black to white in periods Ⓐ and Ⓒ is the same as that of the sync signal as shown in Figure 2-8.

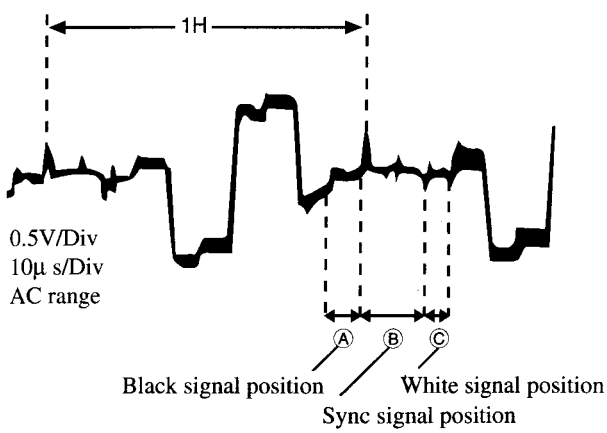



Fig. 2-8

(4) Connect the oscilloscope to IC301 Pin62.
(5) B-Y adjustment
Adjust FL301 so the amplitude from black to white in periods Ⓐ and Ⓒ is the same as that of the sync signal as shown in Figure 2-9.

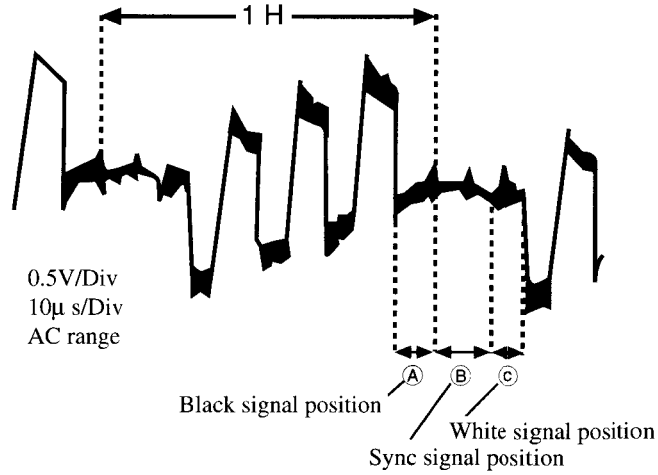



Fig 2-9

## 2-12. Bell Filter Adjustment

(1) Receive a SECAM magenta signal.
(2) Connect an oscilloscope to IC301 pin 18.
(Trigger IC301 Pin 33 or C329 ⊕ side)
(3) Make adjustments with the BPF305 so that the two waveforms overlap on the same level. (Refer to Fig 2-10)

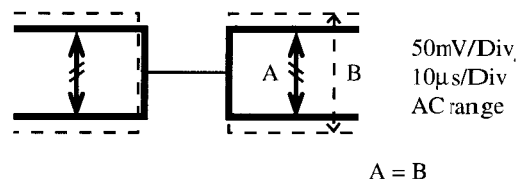
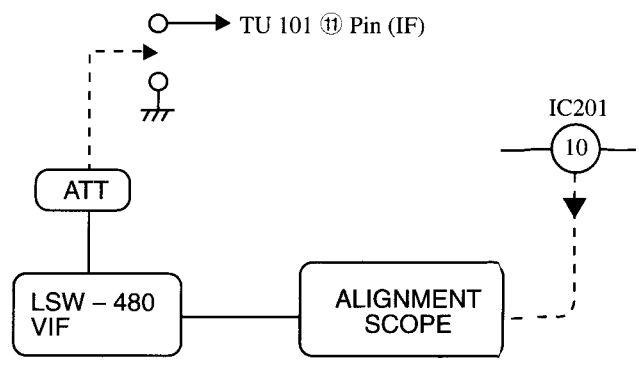



Fig 2-10

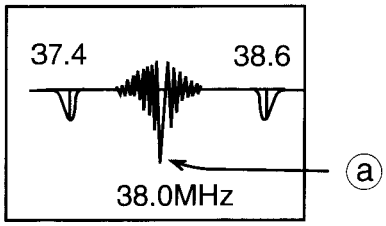
## 2-13. VCO (AFT) Adjustment

( Rough Adjustment )

(1) Make connections as they appear below.

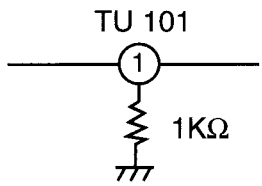


(2) Using a DC power supply, add DC3.0V ± DC0.2V of voltage to the IC201 Pin17.
(3) Make adjustments with L210 so that the waveform's center section (a section in the figure below) of the ALIGNMENT SCOPE becomes 38.0 MHz ± 50 KHz.




(Fine Adjustment)

(1) Connect the resistance of 1 KΩ between the TU101 Pin 1 and the GND.



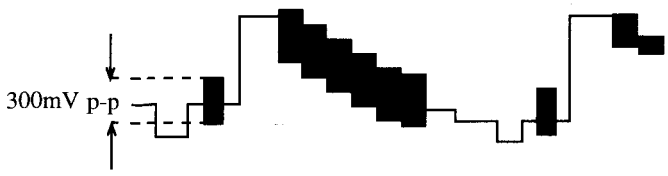

(2) Input the following signal conditions to the TU101 Pin11. (AM/FM SSG)

| | |
|---|---|
| CARRIER | 38.0 MHz |
| LEVEL | 100 dB μ |
| MOD | OFF |

(3) Make adjustments with L210 so that the voltage of the IC201 Pin13 is DC5.0V ± DC0.2V.
(4) Remove resistance (1 KΩ).

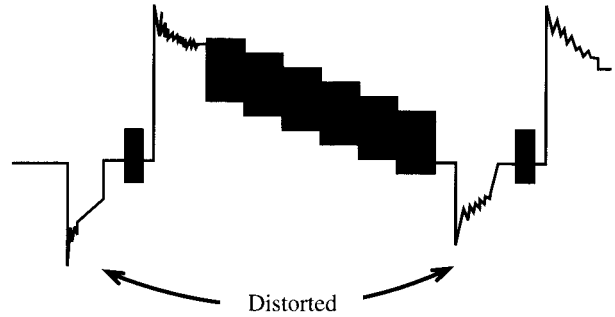
( Simple Adjustment Method )

(1) Using the pattern generator LCG-404, receive the signal for channel 3 (55.25 MHz).
(2) Connect an oscilloscope to the IC201 Pin10.
(3) Make adjustments with L210 so that the amplitude of the burst signal section of the image signal becomes 300m Vp-p.




Note: When the tuner preset is not carried out properly, the horizontal synchronizing signal becomes distorted in the manner of the waveforms in the figure below. In a situation like this, carry out the tuner preset once more.
After signals are received correctly, perform the simple adjustment mentioned above.

< Incorrect example >




## 1. How To Activate/Release Service Mode

Test mode is activated by pressing TEST key (Hidden Key). (Refer to Fig.1).

When the Test Mode is activated, below menu (refer to Fig.2) will be shown.

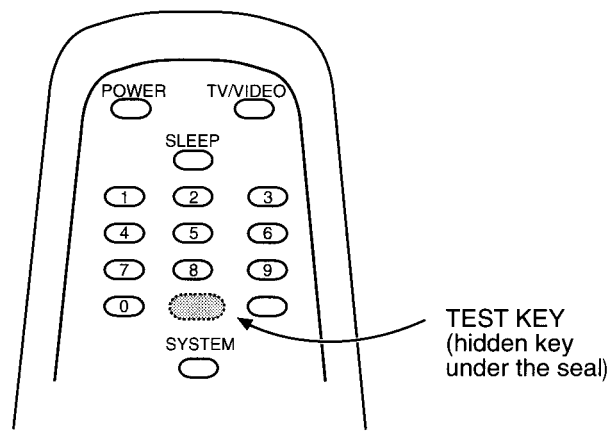



Fig. 1

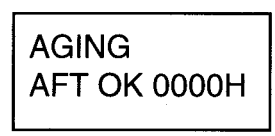



Fig. 2

Test mode is released by pressing TEST KEY again.

<JIG remote control unit>
JIG remote control unit to operate the service mode should be used with the remote control unit for TV-C142 (RC-6VT06, 86-LB4-951 - 010)

## 2. Content of Service Mode.

Test mode have the following function.
① Function for releasing Auto Power OFF
② Display AFT S curb status.
③ Display the product Hours of CRT ON.

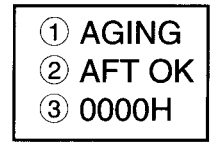



Fig. 3

① Release the function of Auto Power OFF.
It releases the function of Auto Power OFF when no input occurs.

It is used for warming up (Aging) of CRT Adjustment.

② Display of AFT S curb.
It displays OK, UP, DN in the status of AFT S curb.
(Observe the Voltage of IC201 Pin ⑬)

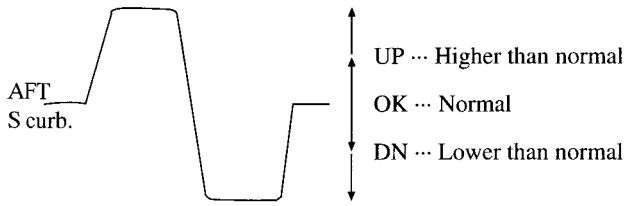
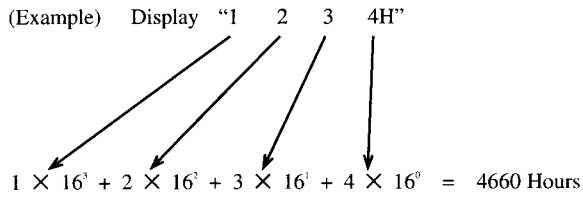



Fig. 4

③ Display the product hours of CRT ON.
It product hours of CRT ON at one hour interval count up by (HEX).

Display is 4 digits in HEX.
The product hours is connected to the decimal scale number from the displayed number.

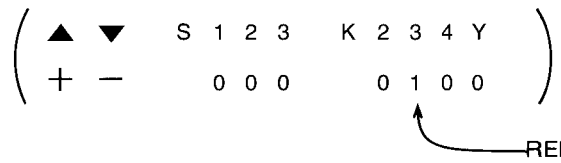



※ When it exceeds 7FFF H (32768 hours), it will reflect to 0000 H again.

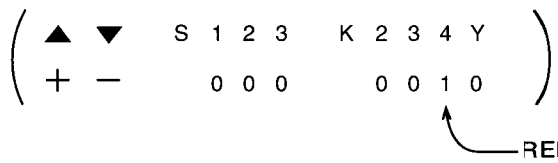
## Precautions to replace EEPROM

When replacing the EEPROM (IC3, AT24C02) during repairs, be certain to follow the sequence appearing below to carry out initialization.

1. Press " TEST " key (hidden key) on the remote control unit to activate the Service Mode. (Refer to Fig. 1)
2. Press " DISPLAY " key on the remote control unit and verify that the screen is the same as in Fig. 2.
3. Press " CHANNEL ▼ ▲ " key on the remote control unit and then move the red color to K3.
4. Press "VOLUME +" key, on the remote control unit set the data on the screen as below.




5. In the same sequence as in step 3 and 4, move the cusor to K4. Then set the display data as below.




6. With conditions as they are in step 5, press the "DISPLAY" key and then press the "FINISH key (hidden key)". (refer to Fig. 1)
7. Following the display of "INITIAL" on the screen for a few seconds, the power will automatically go off.

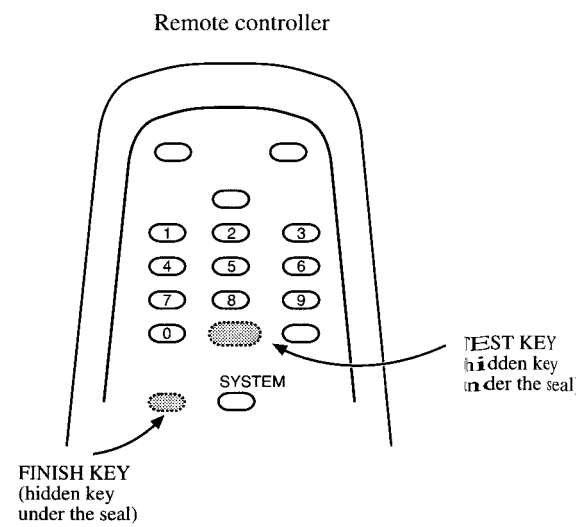



Fig. 1

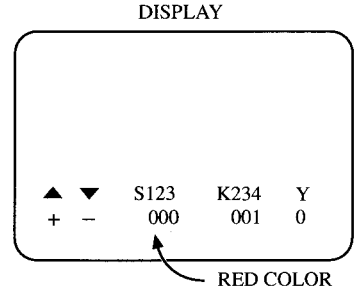
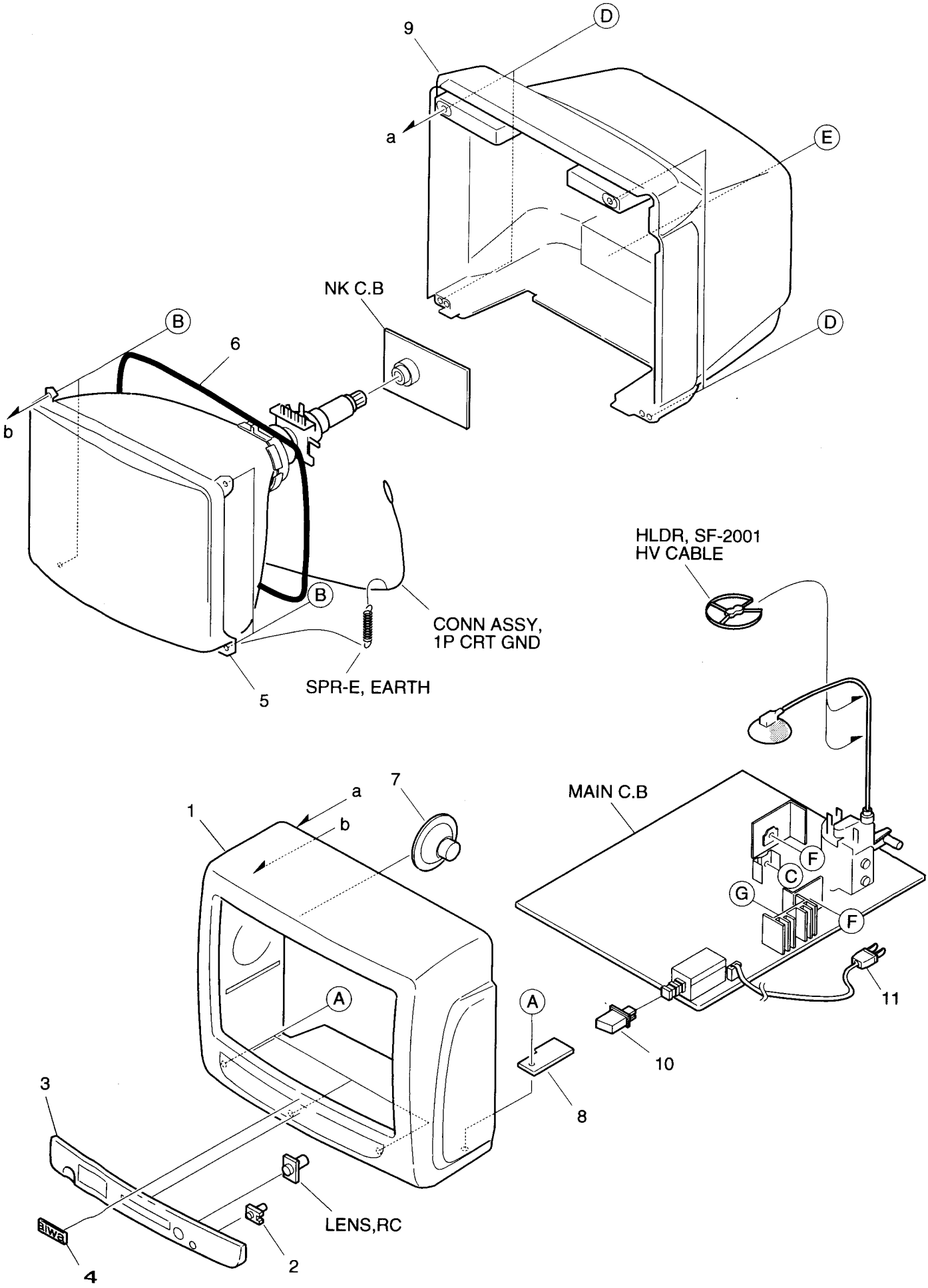



Fig. 2

# MECHANICAL EXPLODED VIEW 1/1



# MECHANICAL PARTS LIST 1 / 1

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

| REF. NO. | PART NO. | KANRI NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 86-LB4-001-010 | | CABI,FR |
| 2 | 86-LB4-006-010 | | LENS,LED |
| 3 | 86-LB4-003-010 | | PANEL,FR |
| 4 | 87-054-086-010 | | BADGE,AIWA 52.5 ABS GLD |
| ⚠ 5 | 84-LB2-604-010 | | CRT,510UFB22TC67<KERJ4> |
| ⚠ 5 | 84-LB2-603-010 | | CRT,A48QAD220X02<KERJ2> |
| ⚠ 6 | 84-LB2-623-010 | | DGC,20PAL3 |
| 7 | 84-LB3-641-010 | | SPKR,F DIA77 8OHM 2W |
| 8 | 86-LBU-201-010 | | HLDR,AC CORD |
| 9 | 86-LB4-002-010 | | CABI,REAR |
| 10 | 86-LB4-004-010 | | BTN,POWER |
| ⚠ 11 | 86-LB7-694-010 | | AC CORD SET,KE2 BLK |
| A | 87-067-758-010 | | BVT2+3-12 W/O SLOT |
| B | 87-078-203-110 | | S-SCREW,W+5-25 |
| C | 87-067-584-010 | | BVT2+3-6 W/0 SL0T |
| D | 87-067-844-010 | | BVT2+4-16 BLK |
| E | 87-067-761-010 | | BVT2+3-10 BLK |
| F | 87-067-579-010 | | BVT2+3-8 W/0 SL0T |
| G | 87-067-680-010 | | BVIT3B+3-10 |

# REFERENCE NAME LIST

## ELECTRICAL SECTION

| DESCRIPTION | REFERENCE NAME |
|---|---|
| ANT | ANTENNAS |
| C- | CHIP |
| C-CAP | CAP, CHIP |
| C-CAP TN | CAP, CHIP TANTALUM |
| C-COIL | COIL, CHIP |
| C-DI | DIODE, CHIP |
| C-DIODE | DIODE, CHIP |
| C-FET | FET, CHIP |
| C-FOTR | FILTER, CHIP |
| C-JACK | JACK, CHIP |
| C-LED | LED, CHIP |
| C-RES | RES, CHIP |
| C-SFR | SFR, CHIP |
| C-SLIDE SW | SLIDE SWITCH, CHIP |
| C-SW | SWITCH, CHIP |
| C-TR | TRANSISTOR, CHIP |
| C-VR | VOLUME, CHIP |
| C-ZENER | ZENER, CHIP |
| CAP, CER | CAP, CERA-SOL |
| CAP, E | CAP, ELECT |
| CAP, M/F | CAP, FILM |
| CAP, TC | CAP, CERA-SOL |
| CAP, TC-U | CAP, CERA-SOL SS |
| CAP, TN | CAP, TANTALUM |
| CERA FIL | FILTER, CERAMIC |
| CF | FILTER, CERAMIC |
| DL | DELAY LINE |
| E/CAP | CAP, ELECT |
| FILT | FILTER |
| FLTR | FILTER |
| FUSE RES | RES, FUSE |
| MOT | MOTOR |
| P-DIODE | PHOTO DIODE |
| P-SNSR | PHOTO SENSER |
| P-TR | PHOTO TRANSISTOR |
| POLY VARI | VARIABLE CAPACITOR |
| PPCAP | CAP, PP |
| PT | POWER TRANSFORMER |
| PTR, RES | PTR, MELF |
| RC | REMOTE CONTROLLER |
| RES NF | RES, NON-FLAMMABLE |
| RESO | RESONATOR |
| SHLD | SHIELD |
| SOL | SOLENOID |
| SPKR | SPEAKER |
| SW, LVR | SWITCH, LEVER |
| SW, RTRY | SWITCH, ROTARY |
| SW, SL | SWITCH, SLIDE |
| TC CAP | CAP, CERA-SOL |
| THMS | THERMISTOR |
| TR | TRANSISTOR |
| TRIMER | CAP, TRIMMER |
| TUN-CAP | VARIABLE CAPACITOR |
| VIB, CER | RESONATOR, CERAMIC |
| VIB, XTAL | RESONATOR, CRYSTAL |
| VR | VOLUME |
| ZENER | DIODE, ZENER |

## MECHANICAL SECTION

| DESCRIPTION | REFERENCE NAME |
|---|---|
| ADHESHIVE | SHEET ADHESHIVE |
| AZ | AZIMUTH |
| BAR-ANT | BAR-ANTENNA |
| BAT | BATTERY |
| BATT | BATTERY |
| BRG | BEARING |
| BTN | BUTTON |
| CAB | CABINET |
| CASS | CASSETTE |
| CHAS | CHASSIS |
| CLR | COLLAR |
| CONT | CONTROL |
| CRSR | CURSOR |
| CU | CUSHION |
| CUSH | CUSHION |
| DIR | DIRECTION |
| DUBB | DUBBING |
| FL | FRONT LOADING |
| FLY-WHL | FLYWHEEL |
| FR | FRONT |
| FUN | FUNCTION |
| G-CU | G-CUSHION |
| HDL | HANDOL |
| HIMERON | CLOTH |
| HINGE, BAT | HINGE, BATTERY |
| HLDR | HOLDER |
| HT-SINK | HEAT SINK |
| IB | INSTRUCTION BOOKLET |
| IDLE | IDLER |
| IND, L-R | INDICATOR, L-R |
| KEY, CONT | KEY, CONTROL |
| KEY, PRGM | KEY, PROGRAM |
| KNOB, SL | KNOB, SLIDE |
| LBL | LABEL |
| LID, BATT | LID, BATTERY |
| LID, CASS | LID, CASSETTE |
| LVR | LEVER |
| P-SP | P-SPRING |
| PANEL, CONT | PANEL, CONTROL |
| PANEL, FR | PANEL, FRONT |
| PRGM | PROGRAM |
| PULLY, LOAD MO | PULLY, LOAD MOTOR |
| RBN | RIBBON |
| S- | SPECIAL |
| SEG | SEGMENT |
| SH | SHEET |
| SHLD-SH | SHIELD-SHEET |
| SL | SLIDE |
| SP | SPRING |
| SP-SCREW | SPECIAL-SCREW |
| SPACER, BAT | SPACER, BATTERY |
| SPR | SPRING |
| SPR-P | P-SPRING |
| SPR-PC-PUSH | P-SPRING, C-PUSH |
| T-SP | T-SPRING |
| TERM | TERMINAL |
| TRIG | TRIGGER |
| TUN | TUNING |
| VOL | VOLUME |
| W | WASHER |
| WHL | WHEEL |
| WORM-WHL | WORM-WHEEL |

| サービス技術ニュース | |
|---|---|
| 番号 | 連絡内容 |
| G— — | |
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| G— — | |

アイワ株式会社
AIWA CO.,LTD.

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9620450, 750038

Tokyo Japan

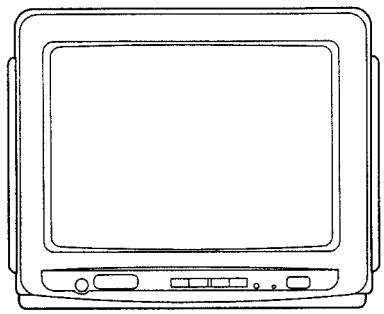
Printed in Singapore

aiwa

aiwa SERVICE

# TV-C202

SERVICE MANUAL



COLOR TELEVISION

• TYPE: KER

## SUPPLEMENT

- This Service manual contains information about the difference between TV-C202 (KERJE4NP) and TV-C202 (KERJ4NP). If requiring the other information, see Service Manual of TV-C202 (KER). (S/M Code No. 09-974-183-1FP).

S/M Code No. 09–97B–236–2FP

# SPECIFICATIONS

**Category**
Color television
**Broadcasting color system**
PAL (B/G, D/K), SECAM (B/G, D/K, K1)
**Television color system (Video input)**
PAL, SECAM, $NTSC_{3.58}$, $NTSC_{4.43}$, PAL60
**Receivable channel**

| BAND | CHANNEL |
|---|---|
| VHF | E2- E12 (WEST EUROPE)<br>R1-R12 (EAST EUROPE)<br>1-9 (IVORY COAST)<br>S1-S20 (OSCAR CABLE CH)<br>S21-S23 (HYPER CABLE CH) |
| UHF | E21-E69 (EUROPE)<br>S24-S41 (HYPER CABLE CH) |

**Aerial Input**
75 ohms, unbalanced
**Picture Tube**
20"
**Screen size**
404(W) x 480(D) x 303(H)mm
(16 x 19 x 12 in.)
**Video Input/Output**
1 Vp-p, 75 ohms
**Audio Input**
0.5 Vrms., 33 kohms more
**Audio Output**
0.5 Vrms., 2.2 kohms less
**Speaker**
76 mm(3 in.) round
**Operating Voltage**
100 – 240 VAC, 50/60 Hz
**Power Consumption**
85W
**Earphone jack**
Monaural-mini jack
**Operating temperature**
5°C – 40°C
**Operating humidity**
35% – 80%
**Dimensions**
520(W) x 479.5(D) x 425(H)mm
($20^1/_2$ x 19 x $16^3/_4$ in.)
**Weight**
18 kg (39.6 lbs.)

• Design and specifications are subject to change without notice.

# ELECTRICAL MAIN PARTS LIST

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

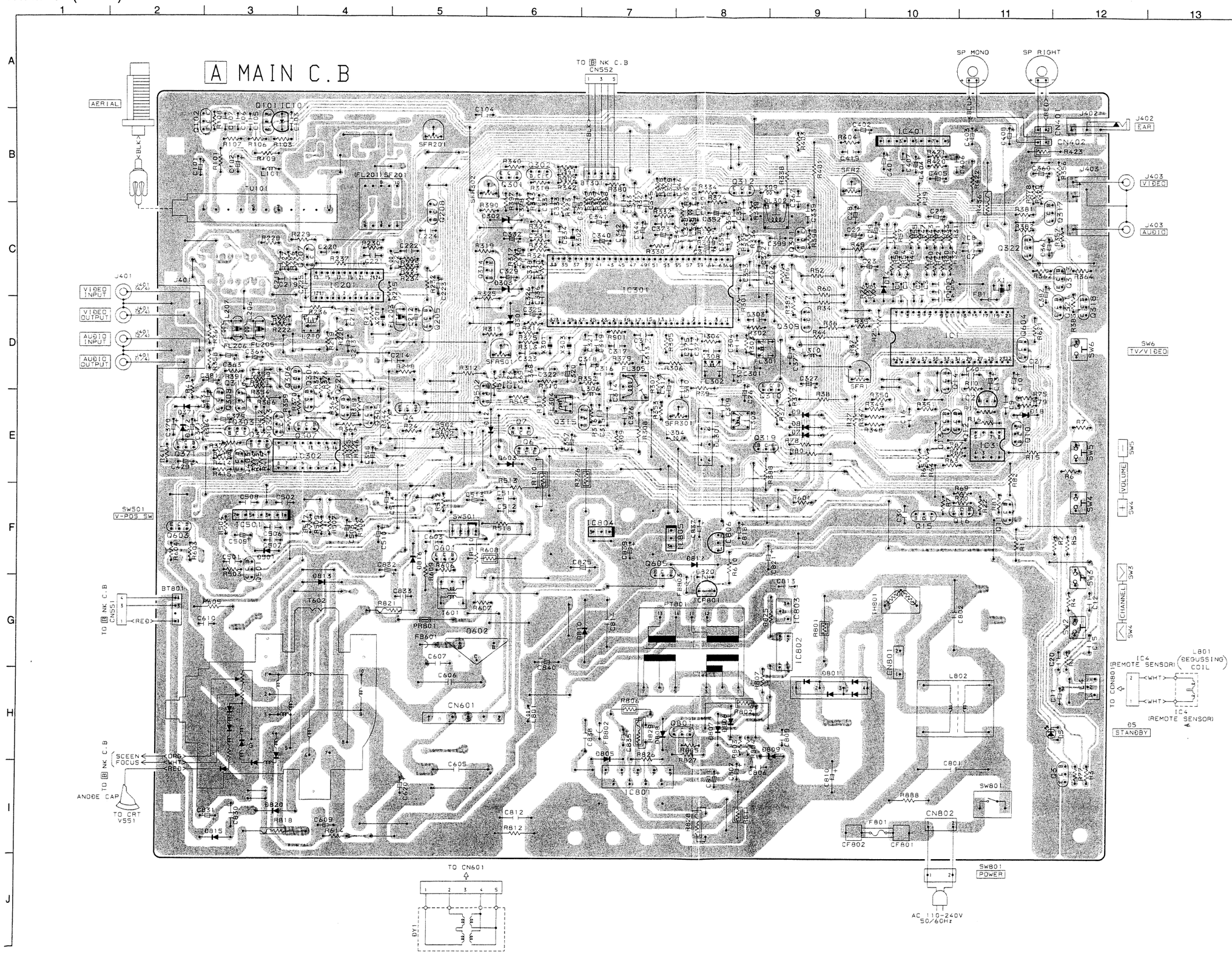
| REF. NO. | PART NO. | KANRI NO. | DESCRIPTION |
|---|---|---|---|
| IC | | | |
| | 87-A90-297-010 | | RCR UNIT,SBX1981-52 |
| DIODE | | | |
| | 87-A40-291-080 | | DIODE,1N4148M(CPT) |
| | 87-A40-001-080 | | ZENER,MTZJ12C |
| | 87-A40-235-080 | | ZENER,MTZJ9.1C |
| | 87-A40-371-010 | | DIODE,D3SBA60 |
| MAIN C.B | | | |
| C14 | 87-018-115-080 | | CAP,TC U 47P-50 J SL UP050 |
| C15 | 87-018-119-080 | | CAP,TC U 100P-50 K B UP050 |
| C20 | 87-018-131-080 | | CAP,TC U 1000P-50 K B UP050 |
| C21 | 87-018-125-080 | | CAP,TC U 330P-50KB UP050 |
| C104 | 87-018-119-080 | | CAP,TC U 100P-50 K B UP050 |
| C325 | 87-016-633-080 | | CAP,E 1-50 M SSL |
| C335 | 87-016-574-080 | | CAP,E 100-16 M SSL |
| C339 | 87-018-116-080 | | CAP,TC U 56P-5 J SL |
| C358 | 87-016-627-080 | | CAP,E 47-16 M SSL |
| C607 | 87-012-397-080 | | CAP,CER 1000P-2K K B |
| ⚠ C810 | 87-A10-647-090 | | CAP,E 220-400 SMH |
| ⚠ C812 | 87-A10-519-010 | | CAP,CER 4700P-4K M E |
| FB1 | 87-003-223-080 | | F-BEAD,-3.4-7.5 BLO2RN2 |
| FB803 | 87-003-223-080 | | F-BEAD,-3.4-7.5 BLO2RN2 |
| ⚠ PR801 | 87-A90-090-080 | | PROTECTOR,1.5A 491 SERIES 60V |
| ⚠ L802 | 87-A90-586-010 | | FLTR,LINE HL-28-153 |
| ⚠ R436 | 87-A00-284-090 | | RES,FUSE 8.2-2W J R-TYPE |
| R801 | 87-A00-277-090 | | RES,CEM 2.2-1W J |
| R811 | 87-A00-283-090 | | RES,M/F 0.27-2W J RSF(S) |
| ⚠ R818 | 87-A00-321-090 | | RES,FUSE 3.9-2 W J R-TYPE |
| SFR2 | 87-024-357-080 | | SFR,100K H EVN DJAA03 |
| SFR201 | 87-024-354-080 | | SFR,22K H EVN DJAA03 |
| SFR301 | 87-024-349-080 | | SFR,1K H EVN DJAA03 |
| SFR302 | 87-024-349-080 | | SFR,1K H EVN DJAA03 |
| SFR501 | 87-024-357-080 | | SFR,100K H EVN DJAA03 |
| SW2 | 87-A90-712-080 | | SW,TACT EVQ11L07K |
| SW3 | 87-A90-712-080 | | SW,TACT EVQ11L07K |
| SW4 | 87-A90-712-080 | | SW,TACT EVQ11L07K |
| SW5 | 87-A90-712-080 | | SW,TACT EVQ11L07K |
| SW6 | 87-A90-712-080 | | SW,TACT EVQ11L07K |
| SW501 | 87-A90-567-010 | | SW,LVR 4-1-3 EVQRAAL |
| NK C.B | | | |
| C554 | 87-018-126-080 | | CAP,TC U 390P-50 K B UP050 |
| ⚠ V551 | 87-JB9-602-010 | | CRT,A48AGY13X67 N |



# MECHANICAL PARTS LIST 1 / 1

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

| REF. NO. | PART NO. | KANRI NO. | DESCRIPTION |
|---|---|---|---|
| ⚠ 5 | 87-JB9-602-010 | | CRT,A48AGY13X67 N |


A MAIN C.B
TO B NK C.B CN552
AERIAL
SP MONO
SP RIGHT
J402 EAR
J403 VIDEO
J403 AUDIO
J401
VIDEO INPUT
VIDEO OUTPUT
AUDIO INPUT
AUDIO OUTPUT
SW6 TV/VIDEO
SW501 V-POS SW
SW4 VOLUME
SW5 CHANNEL
SW3
SW2
IC4 (REMOTE SENSOR)
L801 DEGUSSING COIL
TO CN801
PS STANDBY
BT801
TO B NK C.B CN551
RED
SCEEN
FOCUS
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RED
ANODE CAP
TO CRT V551
TO CN601
DY1
SW801 POWER
AC 110-240V 50/60Hz
IC201
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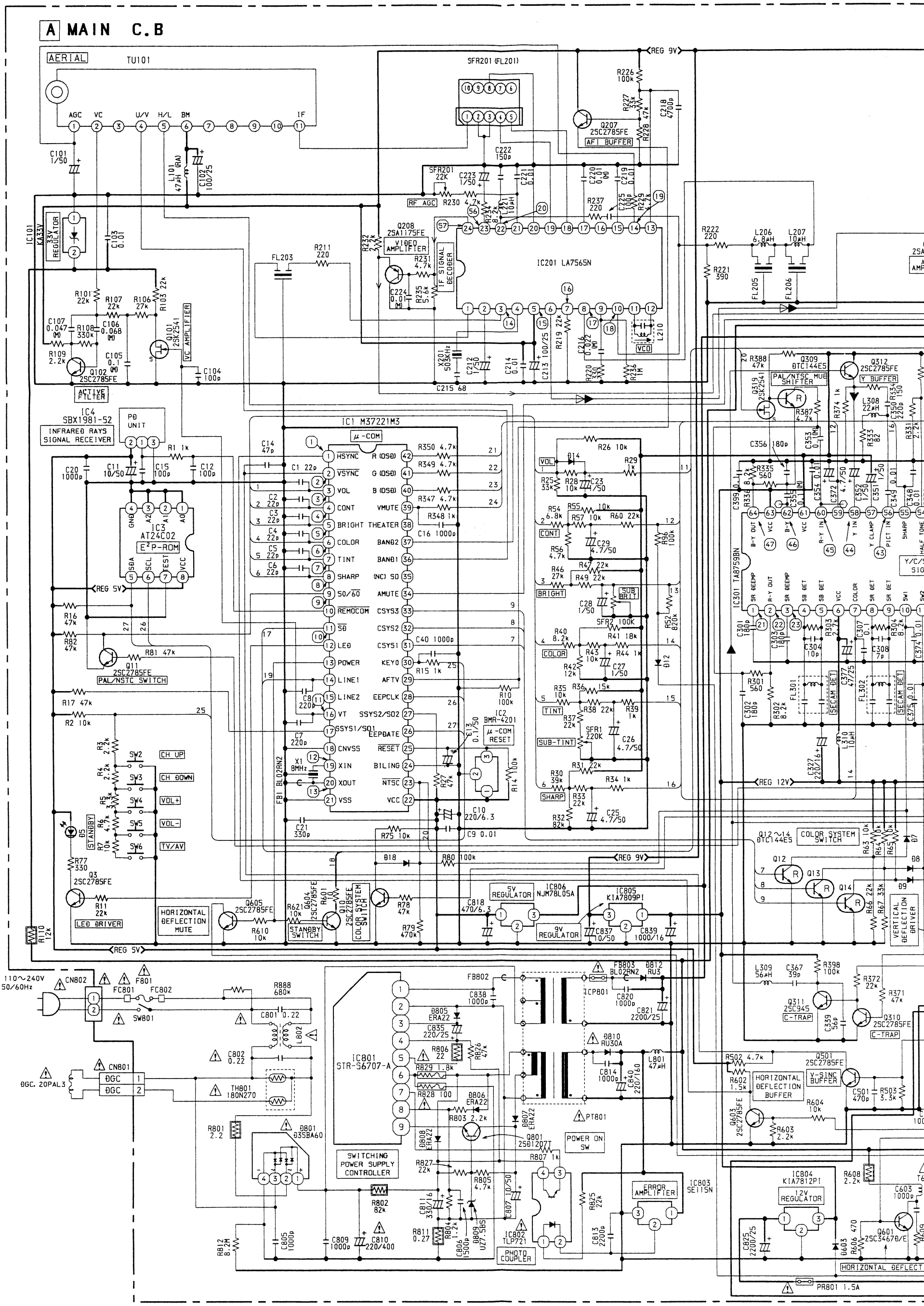
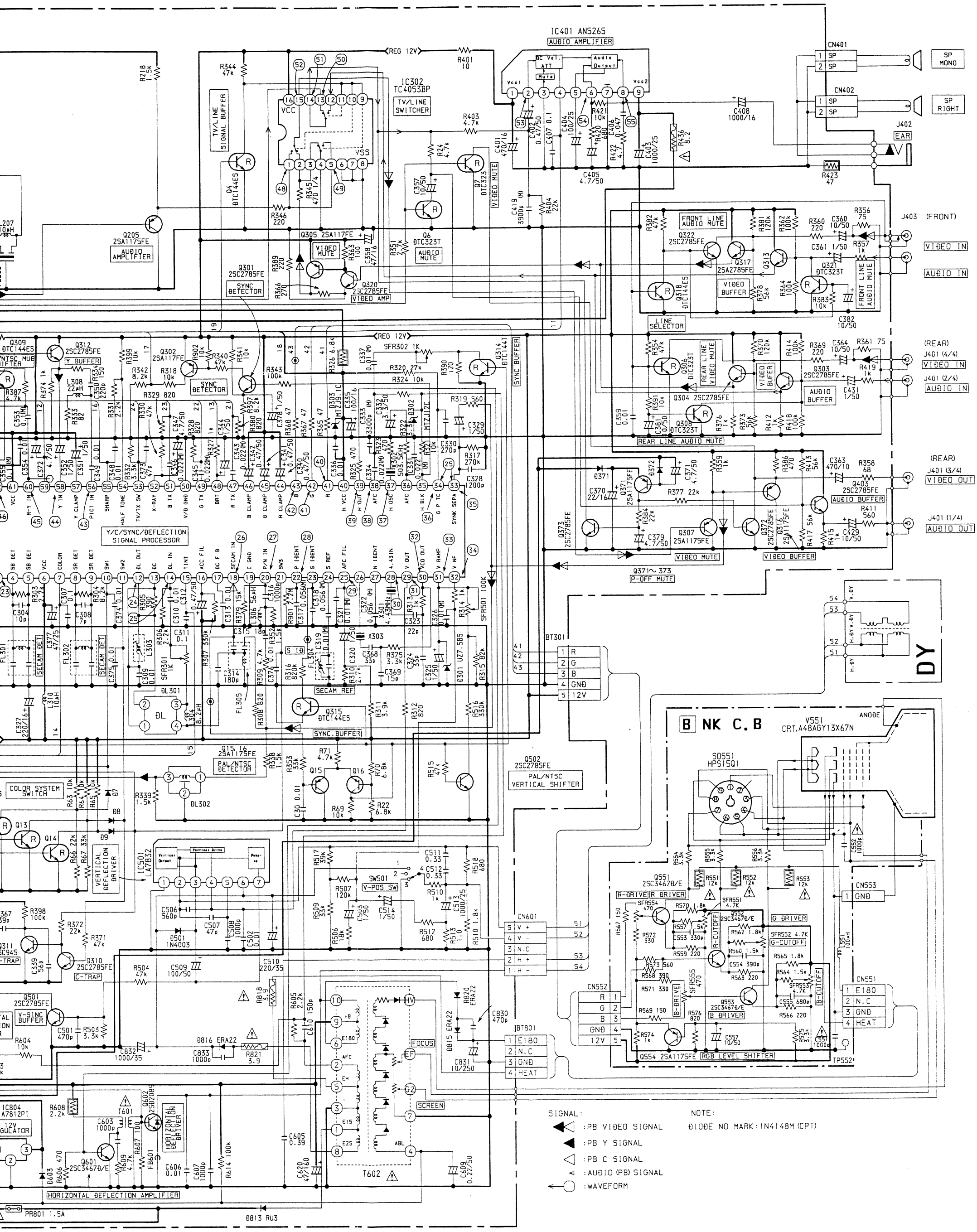
# SCHEMATIC DIAGRAM (MAIN)




IC401 AN5265
AUDIO AMPLIFIER
IC302
TC4053BP
TV/LINE SWITCHER
TV/LINE SIGNAL BUFFER
REG 12V
CN401
CN402
SP MONO
SP RIGHT
J402
EAR
J403 (FRONT)
VIDEO IN
AUDIO IN
(REAR)
J401 (4/4)
J401 (3/4)
J401 (2/4)
J401 (1/4)
VIDEO OUT
AUDIO OUT
FRONT LINE AUDIO MUTE
REAR LINE AUDIO MUTE
VIDEO BUFFER
AUDIO BUFFER
LINE SELECTOR
VIDEO MUTE
AUDIO MUTE
SYNC DETECTOR
VIDEO AMP
Y BUFFER
SYNC BUFFER
SECAM REF
Y/C/SYNC/DEFLECTION SIGNAL PROCESSOR
PAL/NTSC DETECTOR
PAL/NTSC VERTICAL SHIFTER
COLOR SYSTEM SWITCH
VERTICAL DEFLECTION DRIVER
HORIZONTAL DEFLECTION DRIVER
HORIZONTAL DEFLECTION AMPLIFIER
V-SINC BUFFER
C-TRAP
P-OFF MUTE
V-POS SW
R-DRIVE
G DRIVER
B DRIVER
R-CUTOFF
G-CUTOFF
B-CUTOFF
RGB LEVEL SHIFTER
FOCUS
SCREEN
ABL
BT301
BT801
CN601
CN552
CN551
CN553
DY
V. DY
H. DY
B NK C.B
V551
CRT.A48AGY13X67N
ANODE
SO551
HPS15Q1
SIGNAL:
:PB VIDEO SIGNAL
:PB Y SIGNAL
:PB C SIGNAL
:AUDIO (PB) SIGNAL
:WAVEFORM
NOTE:
DIODE NO MARK: 1N4148M (CPT)

# ACCESSORIES / PACKAGE LIST

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

| REF. NO. | PART NO. | KANRI NO. | DESCRIPTION |
|---|---|---|---|
| 3 | 87-A90-486-010 | | ANT ASSY,ROD TV5 SEC.(PAL) |

| サービス技術ニュース | |
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